THE

CALCUTTA JOURNAL

OF

MEDICINE:

A MONTHLY RECORD OF THE MEDICAL AND AUXILIARY SCIENCES

तदेव वक्तुं भेषज्यं यदारोग्याय कल्पते ।
स एव भिषजां श्रेष्ठो र गेभ्यो यः प्रमोचयेत ॥
चरक·

That alone is the right medicine which can remove disease
He alone is the true physician who can restore health
Charaka.

EDITED BY

MAHENDRA LA'L SIRCA R, M. D

VOL. II.

Calcutta:

PRINTED BY I. C GHOSE, ANGLO-SANSKRIT PRESS, 54, SANKARITOLA LANE.

LONDON HENRY TURNER & Co., 77, FLEET STREET, E C.
(Sole Agents for Europe and America.)

1869.

Annual Subscription Rs. 10 (£ 1.) *in advance; Rs.* 12 *in arrears.*

country caused by the rising of the beds of rivers, and the silting up of their mouths.

Shortly after the appearance of the Report of the Epidemic Commission, we contributed a series of articles on the pathology, symptoms, and treatment of this peculiar type of fever in the *Indian Field*, but we had then no opportunities of testing the correctness of the statements of Baboo Degumbur Mitter. Moreover the cold shoulder offered to them by the eminent medical members of the Committee, contributed in no small degree, we must admit, to divert our attention from them. Subsequently, however, when we had repeated occasion to visit patients labouring under malarious fevers in the villages suffering from the epidemic visitation, we remarked the extreme dampness of their soil, which, according to the inhabitants of those villages, was a phenomenon of recent origin. The soil might have been always somewhat damp, but its humidity never or seldom approached any thing that was now observed. It struck us for the first time that there might be more truth in what Baboo Degumbur said than had been admitted. Further experience and inquiry only strengthened this impression, for we could trace, in every instance that had fallen under our observation, the dampness of the soil to local obstruction offered to the drainage. And in noticing the official papers on the subject, published early in 1868, we undertook to defend the views of Baboo Degumbur Mitter in our issues of March and April of that year. At last our growing conviction having, now, become a confirmed belief, we have availed of the opportunity afforded us by the new administration to recur once more to the subject with a view to invite to it the attention of the Right Hon'ble the Governor General in Council, and to call for a fresh inquiry for the purpose of finally settling the question if possible.

It is an established fact in sanitary science that febrile epidemics of the intermittent type are invariably associated with excessive dampness of soil. Bengal itself furnishes the illustration of the fact. In this country, fevers of that type largely prevail about the close of the rains, which have already been unusually heavy here. These fevers, we have no doubt, owe their villages over the dampness of the soil induced by the heavy rains. The visible signs of

undeniable fact that when the country is covered with wat
the height of the rains, fevers of this virulent type do not app
but, at or about the close of the rains, when the waters, which
covered the soil retire and when the tropical sun once more begins
to dart its powerful rays from an unclouded sky upon the satu-
rated soil, cases of fever of the malarious type become more numer-
ous, frequent, virulent and fatal. Hence this period of the year
is significantly called the *Yomástaka*, which means "the period
when the eight doors of Death's mansion are open." The fever
of the epidemic districts is only an intensified type of this old
disease and not entirely a new one. We must seek therefore for
a cause identical with that which causes the ordinary malarious
fevers of *Yomástaka*, but occurring only in greater intensity.

That humid soils, under the influence of high temperature,
generate intermittent febrile epidemics and endemics, is further
proved by the fact that whenever and wherever this humidity is
removed by efficient drainage, epidemics and endemics invariably
disappear. It would take more space, than we could afford, to
cite the numerous proofs, in support of this statement, which
scientific research has brought to light in various parts of the
world. It will be enough to refer to the following well known
facts. Along the eastern coast of England, in parts of Kent,
Essex, Cambridgeshire, Norfolk, Lincolnshire and the East Riding
of Yorkshire, there are marshes, or fens, or low grounds, and the
lands are occasionally overflowed with water. What drainage has
done for these places in England during the last fifty years, is a
matter of history. The marshes have been brought under cultiva-
tion, and the intermittent fevers, which infested these regions,
have become rare. The almost uninhabitable and deadly swamps
Algiers, infested formerly by pestilential fevers and mosquitoes
as made life intolerable, are now transformed into smiling and
ted plains, busy and thriving villages and towns, the inha-
of which enjoy the average health of the most favoured
Europe. An efficient system of drainage, by removing
humidity which characterized the soil there, has done
t an extremely damp soil has done in other countries,
s, is being done in the epidemic districts of Ben-
othing to be wondered at. Unfortunately while
Algiers art has eradicated the generating cause

epidemic fevers; in Bengal it has contributed to convert once healthy towns and villages into abodes of febrile endemics and of squalid poverty and disease. In Appendix I. to the Report of the Epidemic Committee, Baboo Degumber Mitter says:

"Choonakhally, Bhautpara, Cassimbazar, Kalkapore, Bamunghatta and Furreshdanga were situated on a curve of the River Hooghly, until a straight cut was made some sixty years since forming the chord of the curve, thus changing the course of the river and throwing those places inland. This engineering operation was closely followed by the breaking out of an epidemic in all those places, which, in its virulence and mortality, was unparalleled by any pestilential visitation in Bengal, saving perhaps, that which depopulated Goun, (the ancient capital of Bengal)." * * * * * This fever still continues there to the present time, shewing that its causes are still in active operation. In other respects Cassimbazar does not at all differ from any healthy town in Bengal. Its waters, vegetation, houses, and the mode of life of its inhabitants are exactly alike; but no man sojourning there for a day can help being struck with the *extreme dampness* which is felt during even the hottest months of the year."

That similar excess of damp does exist, in what are now called the epidemic localities of Lower Bengal, no body has attempted to deny. The point, if need be, may, for the sake of greater certainty, again be inquired into. On this point, however, there is no difference of opinion. Opinions differ only as to the cause or causes of such extraordinary moisture being retained in recent times in places subject to the epidemic visitation under notice. That the moisture is excessive and of recent origin is universally admitted. But how has this greatly increased humidity arisen? The question is susceptible only of one answer, namely, obstruction either partial or total to the natural drainage of the epidemic villages. The whole question, then, is, at last, reduced to the simple query, *viz.*, what has caused this obstruction, or stoppage of drainage? Baboo Degumber Mitter is of opinion that it has been caused, in some instances, by railways, and in others by conse-feeders, and other new roads, as well as new embankments, inter-up water-ways and outlets to the main rivers. Dr. M[illegible] Bengal others, as stated above, maintain on the contrary never they drainage of a considerable tract of country has been at they are by the rising of the beds of the rivers," and the have already their mouths. We have, however, on more occa[illegible] villages over declared our concurrence in opinion with Baboo D[illegible] visible signs of

In our issue of March we said that "artificial obstructions to natural drainage are more likely to be followed, and are more often followed by, outbreaks of fever, than are obstructions which slowly arise from the operations of nature herself. In other words, we regard the natural obstructions to drainage in the light of remote or predisposing, and the artificial obstructions, in that of immediate or exciting causes, as it were, of malarious epidemics." We are now more than ever convinced of this. Neither the gradual rising of the beds of the rivers, nor the slow silting up of their mouths, can reasonably account for the sudden local increase of moisture which we have repeatedly observed in our professional visits to the epidemic villages. This increase is a local phenomenon giving rise only to a limited localization of the febrile epidemic. While one village or a group of villages on one side of a road, embankment or khal is found to suffer dreadfully from the epidemic visitation; another village or group of villages on the other side of the same, is found to be altogether free from it. A general cause such as the alleged rising of the beds of rivers and silting up of their mouths would create increased dampness and consequent unhealthiness of whole tracts of country of which they are the channels of drainage. Nor can such a cause account for the outbreak of the epidemic having suddenly appeared only about ten years ago with scarcely any or no premonitory warnings whatever. The riverbeds must have been gradually rising and their mouths must have been silting up for a long series of years. They cannot have, all of a sudden, occurred only previous to the outbreak of the present epidemic, so as to offer any reasonable grounds for connecting them with the latter as cause and effect.

In his minute on the subject, published in the *Calcutta Gazette* of the 1st April 1868, His Excellency Sir John Lawrence very truly observed "that the report of the Commission does not satisfactorily account for the fact, that all the causes of disease, as stated by the Commission, have been for years in work in many places, which, until lately, have never suffered, and are still exempt in many places yet free from sickness." Is not the observation as much applicable to the theory of the silting up of the mouths of the rivers and the slow and gradual rising of the beds reached by Dr. Mouat and others, as to the minor causes assigned by the Commission in their report to which the

ex-Governor-General intended to apply his remark? He continues, with equal pertinency and sagacity:—"The only new cause suggested by the native member of the Commission, Babu Degumber Mitter, as probably increasing the dampness which the Commission considered to be the main source of the disease, was the obstruction to drainage by railways and roads and the shutting up of outlets to rivers." This cause alone is of recent origin as is the epidemic itself, the railways, their feeders and many roads and embankments having come only lately into existence. We challenge the most searching inquiry on the subject and we have no doubt that the result will only confirm what the Baboo says in his Statement and Memorandum attached to the Epidemic Committee's Report. For the sake of ready reference we give below the more striking and important passages, to be found in those documents, bearing upon the question under discussion:

"The drainage of all the villages in the Epidemic districts, as elsewhere in Lower Bengal, is effected by the water first running out into the nearest paddy *fields* lying in the direction of their slope, thence it collects in the *Beels*, from which it rushes through *khals* into larger streams, which again communicate with navigable rivers. An obstruction accordingly in any one of these conduits must interfere with the drainage, and its effects are felt more or less according to the proximity or remoteness of the obstruction from the scene of its influence. Accordingly it has been found * * * * * * that the stoppage of the mouths of the different streams has not been productive of such serious consequences to the villages within their influence as when the same occurred more in the vicinity of these villages." At the conclusion of his Memorandum the Baboo adds "that the face of the country being perfectly flat the drainage over the whole surface is towards the direction of its slope, and consequently roads running transversely to it must of necessity intercept the drainage. Both the East Indian and Eastern Bengal Railways are provided with capacious viaducts whenever they crossed what appeared to the eye as watercourses; but they are in reality khals and other large streams, which, as I have already observed, received the drainage in its flow from the villages over *paddy fields* and *Beels*. The latter exhibit no visible signs of

their being water ways, and could not be known as such unless narrowly watched during the rains, though a road crossing them would more effectually shut out the drainage, and the evil consequences resulting therefrom would be much sooner felt than when it crossed distant channels."

Had Lieutenant Hills paid sufficient attention to this last passage he would never assert "that the Eastern Bengal Railway had not affected the drainage." Will any one dare deny that it obstructed the drainage of Hallishehur, Kanchrapara, Chakdaw &c. in its flow to Beel Burrotee and other outlets exactly in the way described in the extract quoted above, viz, by the line of railway passing through paddy fields over which the drainage of all those places flowed in its passage to the Beels—and was not the proximity of the obstruction attended with the breaking out of the Epidemic fever immediately after the construction of the Railway? Again had not the feeder, which was run on from Pandoa to Cutwa, been attended with the same fatal consequences to all the villages which lie to the east of it, viz, Bullagurh, Shomra, Goopteepara, Culna, &c., the drainage of which it has intercepted in its flow westward? We can multiply many more instances in support of our position. Suffice it to say that we have not yet met with in the course of our professional visits, any epidemic village the drainage of which has not been interfered with in some way or other as set forth in the Appendix.

As to jungle and rank vegetation, the Lieutenant Governor though he fully admits the very unsatisfactory sanitary condition of the Bengalee villages, emphatically remarks that hitherto no valid grounds have been shown for concluding either that the affected villages are more overgrown with jungle and rank vegetation than was *formerly* the case, or that the outbreaks of the epidemic were, in any way, connected with the cause." Thus we find that the head of the local, as well as that of supreme Governments, are alike disposed to reject the conclusions of the Commission, and consequently to favor those of Baboo Degumber Mitter.

A striking and direct proof of the truth of the Baboo's conclusions is to be found in the report of Mr. Montressor, at the Commissioner of Burdwan, on the village of Dwarbashini. [redacted] village the epidemic totally disappeared on removal of the

local obstruction to its drainage. On the other hand, the sanitary measures, based upon the theory of rank vegetation, stagnant pools and neglected tanks, have hitherto proved everywhere unsuccessful and worse than useless. The Lieutenant-Governor justly expresses his conviction that any hasty and indiscriminate efforts on the part of the Government officers to enforce such measures will bring them into total conflict with the feelings and wishes of the population, and will lead to a positive opposition on their part to all sanitary improvements.

In conclusion we would beg to observe that up to this hour, nothing has transpired to bring into question the conclusions arrived at by Baboo Degumber Mitter. On the contrary every thing tends to show, if not their absolute soundness, at least their great reasonableness. They have been shown by us to be in accordance with well established facts in science, with widely accepted doctrines of sanitation, with our own experience, and with local circumstances and physical meteorogical phenomena of Lower Bengal. At any rate we believe we have succeeded in showing that they deserve more consideration than has yet been vouchsafed to them. And, as their truth or falsehood may be tested without much difficulty, trouble or expense, we beg humbly to insist upon a fresh inquiry with experiments on a small scale being instituted by Government with as little loss of time as possible. We are of opinion that a better opportunity will hardly offer itself to the new Viceroy of winning popularity and the blessings of the millions whose destiny has been entrusted to his keeping.

DR. REITH AND HIS COLLEAGUES; OR THE PROGRESS OF HOMŒOPATHY.

Our readers will remember the allusion we made in a previous number to the papers published by Dr. Reith in the *Edinburgh Medical Journal* (February and April, 1868), and showed that the doctrinal points maintained therein were strictly homœopathic. In fact, we ventured to say that "with the exception of the vexed question of infinitesimals, Dr. Reith seems to be as through-going a homœopath as any of the bigoted followers of Hahnemann." We therefore wondered at the fact of an orthodox organ having admitted papers which contained such startling views. And we accounted for this want of opposition to Dr. Reith, if not a tacit acquiescence with his teachings, "by the fact of his denouncing Hahnemann and homœopathy in the same breath that he admits a germ of truth in the teachings and the system of that distinguished man, and in the fact of his giving out that he has arrived at the homœopathic law by independent reasoning and not from any suggestion derived from Hahnemann's Organon or any other professed homœopathic work."

At the time that we wrote the article in question commenting upon Dr. Reith's views, we ventured to think, though we did not venture to express, that it would be strange if a man of such acuteness and ability, having come unaided almost to the very threshold of the temple, would fail to enter it and behold the truth, he has been seeking, in its full glory. Our readers will be glad to learn that Dr. Reith has lately had the moral courage and the honesty to avow that his homœopathy and Hahnemann's are indentical.

"In proof," says he, "of the total misconception which prevails in the professional mind regarding Homœopathy, I may state that on the publication of my views, I received several communications from Allopathic medical men agreeing with my conclusions. They said in effect, your views are similar to our own, and are the true explanation of the complexity of drug action. To which I replied—If you agree with me then you must face Homœopathy, for my views are neither more nor less than a physiological explanation of the law of similars. 'Oh! but,' said they, '*your* homœopathy is rational and intelligible, quite different from Hahnemann's absurd system.' My reply is, in effect, this—My homœopathy and Hahnemann's are identi-

cal; I have not given a single opinion, with the exception of the physiological basis, which was not held by Hahnemann long before. You assent to Homœopathy as I present it; you abhor it as Hahnemann presents it—they are both the same *minus* the speculations and absurdities of the latter, which are now exploded. You thus take in six, but reject half-a-dozen. Your ideas of Hahnemann's system are, therefore, those of misconception and ignorance, for what you now assert your belief in has been the doctrine and practice of Hahnemann and his followers for more than half a century."

The circumstances which have led to the confession of Dr. Reith and his consequent expulsion from the Infirmary are briefly stated as follows:—Dr. Reith having to go on a tour to the Continent leaves his wards in charge of his colleagues, Drs. Harvey and Smith. Drs. Harvey and Smith find that Dr. Reith's patients were taking strange medicines not even mentioned by name in the British Pharmacopœia, and ordinary medicines in strangely minute doses. The strange medicines were evidently those in common use amongst homœopaths, and the strangely minute doses were an approach to the infinitesimal doses, the greatest bugbear of the profession. Nothing could be more plain, therefore, than that Dr. Reith was using homœopathic drugs, and ordinary drugs in homœopathic doses, in other words that he was, in fact, a homœopath. No further inquiry was instituted nor was deemed necessary. It was enough for Drs. Harvey and Smith to remember that the profession, the legitimate profession, had fixed its ban upon the heretic system. Dr. Reith was evidently countenancing the condemned system, and must, therefore, suffer condemnation himself. Of what use would it be to avail themselves of the opportunity thus presented by Dr. Reith's use of homœopathic medicines to see for themselves if the much abused system deserved the abuse heaped upon it? Of what use would it be to see if Dr. Reith's patients were actually deriving any benefit from the novel plan of treatment in which they were placed? The profession, that is, a few members thereof, have decided the question for them, and as true and loyal members themselves, they ought to remain satisfied with the verdict, though it is an acknowledged fact that these so-called judges have passed their sentence of condemnation without any examination of the evidence at all.

Dr. Reith on his return finds himself at once confronted by his colleagues in open battle. Instead of a friendly conference on

DR. REITH AND HIS COLLEAGUES; OR THE PROGRESS OF HOMŒOPATHY.

Our readers will remember the allusion we made in a previous number to the papers published by Dr. Reith in the *Edinburgh Medical Journal* (February and April, 1868), and showed that the doctrinal points maintained therein were strictly homœopathic. In fact, we ventured to say that "with the exception of the vexed question of infinitesimals, Dr. Reith seems to be as through-going a homœopath as any of the bigoted followers of Hahnemann." We therefore wondered at the fact of an orthodox organ having admitted papers which contained such startling views. And we accounted for this want of opposition to Dr. Reith, if not a tacit acquiescence with his teachings, "by the fact of his denouncing Hahnemann and homœopathy in the same breath that he admits a germ of truth in the teachings and the system of that distinguished man, and in the fact of his giving out that he has arrived at the homœopathic law by independent reasoning and not from any suggestion derived from Hahnemann's Organon or any other professed homœopathic work."

At the time that we wrote the article in question commenting upon Dr. Reith's views, we ventured to think, though we did not venture to express, that it would be strange if a man of such acuteness and ability, having come unaided almost to the very threshold of the temple, would fail to enter it and behold the truth, he has been seeking, in its full glory. Our readers will be glad to learn that Dr. Reith has lately had the moral courage and the honesty to avow that his homœopathy and Hahnemann's are indentical.

"In proof," says he, "of the total misconception which prevails in the professional mind regarding Homœopathy, I may state that on the publication of my views, I received several communications from Allopathic medical men agreeing with my conclusions. They said in effect, your views are similar to our own, and are the true explanation of the complexity of drug action. To which I replied—If you agree with me then you must face Homœopathy, for my views are neither more nor less than a physiological explanation of the law of similars. 'Oh! but,' said they, '*your* homœopathy is rational and intelligible, quite different from Hahnemann's absurd system.' My reply is, in effect, this—My homœopathy and Hahnemann's are identi-

cal; I have not given a single opinion, with the exception of the physiological basis, which was not held by Hahnemann long before. You assent to Homœopathy as I present it; you abhor it as Hahnemann presents it—they are both the same *minus* the speculations and absurdities of the latter, which are now exploded. You thus take in six, but reject half-a-dozen. Your ideas of Hahnemann's system are, therefore, those of misconception and ignorance, for what you now assert your belief in has been the doctrine and practice of Hahnemann and his followers for more than half a century."

The circumstances which have led to the confession of Dr. Reith and his consequent expulsion from the Infirmary are briefly stated as follows:—Dr. Reith having to go on a tour to the Continent leaves his wards in charge of his colleagues, Drs. Harvey and Smith. Drs. Harvey and Smith find that Dr. Reith's patients were taking strange medicines not even mentioned by name in the British Pharmacopœia, and ordinary medicines in strangely minute doses. The strange medicines were evidently those in common use amongst homœopaths, and the strangely minute doses were an approach to the infinitesimal doses, the greatest bugbear of the profession. Nothing could be more plain, therefore, than that Dr. Reith was using homœopathic drugs, and ordinary drugs in homœopathic doses, in other words that he was, in fact, a homœopath. No further inquiry was instituted nor was deemed necessary. It was enough for Drs. Harvey and Smith to remember that the profession, the legitimate profession, had fixed its ban upon the heretic system. Dr. Reith was evidently countenancing the condemned system, and must, therefore, suffer condemnation himself. Of what use would it be to avail themselves of the opportunity thus presented by Dr. Reith's use of homœopathic medicines to see for themselves if the much abused system deserved the abuse heaped upon it? Of what use would it be to see if Dr. Reith's patients were actually deriving any benefit from the novel plan of treatment in which they were placed? The profession, that is, a few members thereof, have decided the question for them, and as true and loyal members themselves, they ought to remain satisfied with the verdict, though it is an acknowledged fact that these so-called judges have passed their sentence of condemnation without any examination of the evidence at all.

Dr. Reith on his return finds himself at once confronted by his colleagues in open battle. Instead of a friendly conference on

the subject, which Dr. Reith might well have expected, considering the friendship that existed between them, Drs. Harvey and Smith address him demi-officially protesting against his use in the Infirmary of acknowledged homœopathic medicines and preparations and also against his using extraordinarily minute doses of the officinal preparations. He is asked to reconsider his views for the sake of his own professional status, as well as of the delicate position, they thought, they were themselves placed in. It is strange that they should admit that they have been compelled to address Dr. Reith with great reluctance, "as," say they, "we know that you are imbued with a great zeal for science, and that you have a thorough love for your profession." Dr. Reith finding that his zeal for science and love of his profession do not save him from being condemned unheard, asks his protesting colleagues to "kindly state on what they object to homœopathic medicines and small doses of officinal preparations." This surprises Drs. Harvey and Smith. Are they singular in their disapproval of Homœopathy? Have not its pretensions to be considered either a rational or a sound system of treatment been often and ably refuted? They therefore decline to re-open the discussion, and hope that on this friendly remonstrance Dr. Reith might be induced to forego the practice of Homœopathy in the Infirmary, or else they will be bound to bring the matter to the notice of the Managers. "If the Managers shall sanction your proceedings," they add, "well and good. We at least as physicians to this Hospital shall have acquitted ourselves of our official responsibility to the Managers, the public, and the profession." Our readers will here remember, these gentlemen say nothing about their resigning in case Dr. Reith is allowed to have his own.

It is necessary to bear in mind the principle involved in this letter in order that we may judge Dr. Reith fairly. Dr. Reith in his reply has certainly made use of language which, though not unparliamentary, was certainly not civil. The provocation was great; the liberty of private judgment was entrenched upon to a degree which could not fail to irritate the coolest brain. Nevertheless we must say Dr. Reith would have done well to have abstained from tart language. He should have remembered that the cause of truth has not only never been served,

but very often has been thwarted by passion and want of presence of mind. Apart however from this flaw, there is nothing in the whole conduct of Dr. Reith to find fault with.

Now considering the form the letters of Drs. Harvey and Smith assumed namely, "the form of a three-fold protest—against homœopathy, against small doses of authorized preparations, and against his published therapeutic opinions generally," virtually, therefore, against the liberty of private judgment, we must say that Dr. Reith was bound to do as he has done, only he might and should have softened the language he used. Eminent authorities were appealed to. Dr. Reith shows that these authorities, being admittedly divided among themselves, could not over-ride private judgment. Reference was made to the judgment passed by the profession on homœopathy as an inert and a negative system which has been often and ably refuted. Dr. Reith shows that the judgment which the profession, the heads of it, have passed upon the reigning system, is more condemnatory than that upon homœopathy, declaring the former to be not only negative and inert but positively mischievous. As for the able and oft-repeated refutation of homœopathy, Dr. Reith very properly places it in the same category with the refutation of the statements of Galileo and of the discoveries of Harvey and of Jenner. And he further shows that far from the whole profession having absolutely condemned it, "such eminent Allopaths as Liston, Broussais, Fletcher, Combe, Brera, M'Naughton, have all spoken of Homœopathy in terms of respect and advocated not merely toleration but a fair hearing to its adherents, and an impartial examination of its claims at the bedside." Well might he therefore exclaim, "It is reserved for lesser minds to act on the Inquisitorial principle."

Dr. Reith was remonstrated with on the point of the dose and was referred to the British Pharmacopœia, "a work compiled by the most eminent authorities on Therapeutics and Materia Medica in Great Britain," and therefore any departure from its indicated doses must be looked upon as heterodox and worthy of the severest censure. Unfortunately for Drs. Harvey and Smith the compilers of the Pharmacopœia distinctly say that the indicated doses "are not authoritatively enjoined" and that the practitioner is left to "rely on his own judgment and act on his own responsi-

bility in graduating the doses of any therapeutic agents he may wish to administer to his patients."

As for Dr. Reith's views on the action of medicines, they are shown to be in accordance with those of the best experimental pathologists of the day, such as Brown-Sequard, Claude Bernard, &c; and it was therefore nothing but ignorance on the part of Drs. Harvey and Smith, ignorance of the recent advances made in this direction, which could prompt them to declare these views as being opposed to the teachings of the foremost men in the profession. Moreover as they have been long before the profession, it is somewhat singular on their part to have come forward so late in the day to brand them as heretic.

Drs. Harvey and Smith having intimated to him that the whole correspondence shall be sent to the Managers, Dr. Reith asks them in honor to answer the following questions, before they commit themselves so far:—

"1. Have you carefully studied the subject of homœopathy, so as to be well acquainted with its principle and mode of application?

"2. After such a careful study, have you put the system to a lengthened, impartial, systematic, practical trial, so as to be able to form an opinion on its merits?"

If the first letter of Dr. Reith surprised Drs. Harvey and Smith, the second surprises them more; they look upon it as no more than "a long diatribe on homœopathy," and "a reckless attack upon the profession, calculated to blacken and discredit it." Seeing, therefore, no end that can be served by replying to Dr. Reith's queries, they are now determined to leave the matter in the hands of the Committee of Management of the Infirmary, to whom Dr. Reith is directed to address any reply he may deem fit to make to this their last letter.

Failing to move his collegues to state the grounds of their opposition to him and being thus threatened with condemnation unheard, which was likely to affect seriously his "position and prospects," he next addresses the Managers with explanations, but deeming these insufficient, he publishes a pamphlet on "*Homœopathy, its nature and relative value*," in which he attempts to enter into further explanations of his reason for the partial adoption of that system in his practice, and which he places in their hands, in the hope that they may weigh well and consider before

they commit themselves to a rash step. We are sorry our space presses. The views embodied in the pamphlet are too important and the whole of the proceedings which led to the exp[redacted]ion of Dr. Reith are too significant to be passed over with a cursory remark. We shall therefore review the subject in our next.

THE MEDICAL PROFESSION HONORED BY THE GOVERNMENT OF INDIA.

The medical profession all over the world is the most neglected, the least remunerated, and the most un-honored, and no where is it more so than in England and this country. The reason of this is probably to be found in the fact of the existence of a huge conceit, more or less a disease, in laymen that they understand medical subjects as well as, if not better than, those who devote their lives to their study and cultivation. This conceit is at the bottom of the want of appreciation of the difficulties attendant upon medical research, and consequently of the universal ascription of greater uncertainty to medical science, and greater shortcomings to the medical profession, than there really exist.

We are glad, therefore, whenever the profession meets with appreciation at the hands of the public, and recognition at those of the ruling powers; not because we think that it ought to crave after other rewards than those of an approving conscience, but because we look upon such appreciation and such recognition as healthful signs of the times, as indications of love of life.

Recently England has made some compensation for its past neglect of the profession by making baronets of some of the distinguished medical men of the day. And it seems the Government of India has some desire to imitate this liberal disposition on a small scale. We offer our sincere congratulations to Dr. Joseph Fayrer, Bábu Rám Náráyn Dás, and Moulvie Támiz Khán for the honors they have respectively received at the hands of Government. There cannot be the slighest question in the mind of any one that these honors have been well and fully deserved. Nay we go so far as to say that much more were

deserved. The First Surgeon in and of India, Dr. Fayrer combines in himself rare talents. With solid attainments, and conversant with the daily advancing literature of the Healing Art in all its branches, he has an enthusiastic love of his profession, and a largeness of heart under cover of an apparently blunt if not rough exterior, which can scarcely fail to command the admiration of any one who has had the opportunity, we had almost said, the privilege, of knowing him intimately. It would have given us sincere pleasure to see Dr. Fayrer made a knight instead of a mere Companion. Bábu Rám Náraydn Dás, by his bold and successful operations, especially that of lithotomy, has won laurels which an European surgeon might well envy. And Moulvie Támiz Khán has, by his acquirements and his enthusiastic devotion as a teacher in the Medical College, earned for himself a name which will live long.

While we are greatly rejoiced at the honors thus bestowed upon these three deserving members of our profession, we cannot help observing that there were others, both amongst Europeans and Natives, who are no less deserving of similar recognition, and whom therefore a tacit and perhaps unconscious injustice has been done by neglect. We would cite only one name, and that from amongst the European section of the profession, and ask the public to pronounce upon the justice of our observation. Could Government, we would ask, select, from amidst the ranks of its medical officers, a better man than Dr. Fred. J. Mouat for the bestowal of honors? In whatever light we may view him, whether as a medical officer in the conscientious discharge of his varied duties, or as a genuine patriot who is anxious to maintain the dignity and the honor of England in India, or as a philanthropist who has at heart the amelioration of the condition of the people of this country, we must all admit that he deserves well of his Government. We refrain from mentioning any name from amongst the Native section of the profession, but there cannot be the slighest doubt that there are many on whom state honors would sit with grace.

ON THE COBRA POISON.

By Leopold Salzer, M. D.

In having alluded to Camphor and Arsenic as to be respectively in more or less antidotical rapport to vegetable and animal poisons, it was less our intention to suggest the application of the latter in a cobra-accident as a reliable life-saver, than to show how *little* we have to expect in this respect from any single substance, be it however prominently endowed with general antidotic virtues, as soon as the ground of chemical neutralization has given way. For although camphor undeniably holds a prominent antidotic rapport to most of the vegetable poisons, it will nevertheless be found unfit, in the toxicological sense of the word, for most of them. It loses, if we may say so, in depth, in the proportion of its acting at large; it will, as far as experience goes, moderate the physiological action of vegetable drugs when one of them has been taken by a healthy person for proving's sake; it will disturb their medicinal action, when the same have been taken in such doses as are generally prescribed by the allopathic physician; but it will, in most cases, fail to antidote when poisoning quantities have been taken.

Let us be understood. Every drug will not less act, in a certain measure, antidotically to that previously taken in such doses as described above, since the result of two different actions upon the same body must, on simple mechanical grounds, be different from that liable to be produced by each of them separately. But since, on the other hand, our body does not represent an indivisible, mathematical point, but a complex of different structures and organs, two such different drugs acting on the same individual will usually divide their different effects between themselves, each of them playing on that organ to which it holds the most affinity, so that their mutual neutralization resolves itself into a kind of physiological compromise. It is not within our present purpose to investigate how far this physiological compromise be real or apparent only, permanent or vanishing; suffice it to state that the practice of polypharmacy, so intimately connected with that of allopathy, partly springs from that ground, and that, camphor by contrast, would, in the above case, not undergo any compromise with, but gradually extinguish the *total* action of its

preceding, vegetable drug. We need hardly say that something similar will occur in the case of camphor being from the very beginning mixed with any of those drugs, to which it holds such an antidotic virtue.

From the above we may analogically judge, how little we have to expect from *arsenic* in cobra accidents, by virtue of its being admitted as holding a general antidotic rapport to animal poisons. This class of poisons being besides by far rarer than those of the vegetable kingdom, we stand even in want of a sufficient number of facts to maintain the generality of the assertion. It is true, in poisoning resulting from decayed animal matter or from diseased animals, there is hardly an agent more apt to meet the morbid cause and effect than arsenic. But if, as it seems, the general notions of homœopaths in this respect be solely derived from such cases, the basis of the experience would evidently be too narrow as to support the upper structure of a general assertion. We are besides in the position, as might be seen hereafter, to account on quite other grounds for the remedial virtue of arsenic in cases arising from putrid animal poisons. We must however confess to have seen excellent results from the administration of arsenious acid in hydrophobia; and this not only when no outbreak of rage succeeded the accident—the mad dog might then have made a fool of the doctor—but even when hydrophobic symptoms had made their appearance in the course of time, they were, under the preventive treatment of arsenic, soon subdued by the further application of appropriate remedies. But then this proves only the *prophylactic* virtue of arsenic against animal poisons! After all, the application of that so often mentioned drug in course of experiments on animals with cobra, may not quite be a vain trial, were it only in order to learn how far that mineral substance deserves the reputation it enjoys amongst homœopaths.

We leave the subject of general antidotes with no regret, knowing as we did before, that there is nothing of importance to expect from that quarter, and turn with the more zeal to our proposed researches about a specific cobra-antidote on daynamical grounds.

A *specific* antidote on *dynamical* grounds! Here are two words, which, we are afraid, will require a score of words for explanation. We know full well what to think by a specific chemical antidote; we flatter ourselves to understand even what we meant by a

general antidote to vegetable or animal poisons; it is this: those conditions, which preside over the grouping of atoms in vegetable or animal molecules and their conservation as such when already formed, become altered in the presence of *certain substances* (camphor, arsenic*) whereby a partial disintegration takes place within

* Dr. Grauvogel lately made the following experiments. He soaked several crumbs of corn-bread and put them in a moist place. After a few days all of them were covered with a crowd of vegetation, the penicillium glaucum. He then poured upon the first piece a concentrated solution of lunar caustic, upon the second one of mercurius corrosivus, the third was similarly treated with kali causticum, the fourth with chloride of calcium, the fifth with sulphate of copper, the sixth with ferrum hydrochloricum, and the seventh with spirit of camphor. Of all the above mentioned solutions the greater part flowed over the mould without injuring it; only on those places where a mechanical obstruction prevented their flow and allowed them a long lasting action, some of them partly caused injury to the mould. Camphor was the only exception; it destroyed all the fungi brought into contact with, changing them into an amorphous mass. Of the pieces of bread, thus treated and put again in the same moist place, those over which the spt. camphor had been poured, did not shew the slightest indication of a renewed growth of penicillii, whereas on all the other pieces mould came forth again in its usual abundance.

Christison in his treatise on poisons, article Arsenic, after having shewn by various facts the remarkable property of that substance, now to prompt, now to withhold the process of putrefaction in the bodies of those poisoned by it, or to set into rapid decomposition a poisoned carcase, while some parts of it have withstood decomposition for months in the midst of the general decay, says: "If the preservation of the bodies is not occasioned by some accidental collateral cause (a mode of accounting for the phenomena which seems inadmissible) this property of arsenic must depend on its causing, by some operation on the living body a different disposition and affinity among the ultimate elements of organized matter and so altering the operation of physical laws on it. There appears no sound reason for rejecting this supposition, especially as it is necessary to admit an analogous change of affinities as the only mode of accounting for a still more incomprehensible violation of the ordinary laws of nature,—the spontaneous combustion, or preternatural combustibility of the human body."

It is highly probable to us that the solution of that contradiction lies in two opposite actions of arsenic on animal matter, depending upon the magnitude of the quantity. Christison himself states that arsenic is a good preservative of animal textures when it is *directly* applied to them in *sufficient quantities*. "Hence," he says, "if in a case of poisoning the arsenic be not discharged by vomiting, and the patient die soon, it will act as an antiseptic on the stomach at least, perhaps on the intestines also." It would then appear that large doses of arsenic produce preservation and mummification, whereas small doses, such as comes into contact with the tissues by absorption promote decomposition of animal structure. We have, thanks to the progress of modern science, survived that period, when the homœopath stood isolated with his theory, that different doses of the same drug exhibit physiological actions, not only different in degree,

those molecules, in consequence of which their poisonousness —if they happen to be naturally endowed with that virtue—becomes, as an inherent molecular quality, more or less extinguished too. But what are we to understand by a specific dynamical antidote?—An antidote which operates, not by altering the capacity of the poison, but by altering the capacity of the system, so as to render the same firm against the assailing power of the destructive substance. Do we operate on another principle in natural diseases? Here is a cholera patient before us, tormented with all those agonizing sufferings, common to that violent disease. What is the matter with him? A poisonous principle, which for want of a more appropriate name, we simply call "cholera-poison" has assailed our sufferer. Right or wrong in our presumption, we act accordingly and proceed to treatment. Have we ever seen that hypothetical poison? have we ever ascertained its nature, or even its existence by chemical analysis?—No. Never mind, we say; the chief commandants of two belligerent armies need not necessarily have a personal acquaintance, in order to fight; one knows the action and the tendency of action of the other, and this is enough for the purpose of either of them. We know the morbific enemy by his deleterious effects, and that is sufficient for our therapeutic purpose. For what do we ultimately know more about any being, than the mode and nature of its affecting us?

In attempting dynamically to cure a disease by any drug whatever, we tacitly admit that there is a law governing the morbific principle on one side, and the drug's action on the other.

but often different and even opposite in a character. All modern physiologists now agree to that. The preventive treatment of Hydrophobia with arsenic mentioned in the text was conducted with so called homœopathic doses (3rd dec. dilution applied to the fresh wound and a higher dilution internally) and we venture to doubt if massive doses could effect the same good results. The proposed experiments on animals with arsenic against cobra bite, might for an analogous reason perhaps be best conducted on the same principle.

Those who think themselves so completely convinced that the use of the 3rd dilution would never result in any sensible effects, had only to try on themselves, when in good health, the effects of arsenic not only of the third, but if they like, even of the sixth dilution, equal to a millionth of a drop of the original drug. Let them take one drop of that dilution in a tablespoonful of water, two or three times a day, and they will soon find themselves affected with diarrhœaic stools. Similar trials with the 30th and even 60th dilution are reported to have produced the opposite effect of constipation.

The mode of making the best use of the latter in order to remove the deleterious consequences of the former, as a matter of therapeutic "system," may be, and has been differently, and even oppositely constructed by the various Schools of Medicine; but to deny the very existence of those above mentioned laws, is, to say the least, incompatible with any medical system. In fact, pathology teaches us, to a certain extent, the law and nature of various morbific principles, in so far as they affect our organism, their tendency, their course, &c. Toxicology, on the other hand, makes us acquainted with those principles embodied in drugs as far as we are concerned in them. To oppose to a given morbific force that toxicological force which would be the best match for it, is the task of Medicine; the drug by the instrumentality of which such a task has been fulfilled, has become a remedial agent and will for ever remain so, unless Nature alters her unalterable laws; it has become a specific remedy. A specific for what? For that morbific force, or for that morbific effect, for the removal of which it has been successfully applied; and it will not be Nature's fault, indeed, if she proves herself strictly consistent in the maintenance of her order, leaving any morbific force unneutralized, any morbid effect untouched, in a word, leaving any disease uncured, in regard to which she has never proved herself otherwise from the beginning of time.

The atomic condition of any given drug being at all times the same, all that would be required, in order to establish a set of specifics for different diseases, is that the pathological condition of any given disease be always the same too,, in order that the same result should be attained from the application of the one to the other. Pathology however teaches us that the last supposition is not true. We know that one fundamental morbid state is liable to arise from various derangements of the system. Tubercular meningitis, for instance, may be attended with effusion of serum into the ventricles, with serous infiltration of the substance of the brain itself, with gelatinous softening of the stomach, with a deposition of miliary tubercles into many organs, as the lungs, spleen, kidneys &c., which on their hand must again produce derangements peculiar to their sphere of vital and organic action. It matters little for our healing purpose, if these different species of the same pathological type be produced by as many

originally different revulsive forces, or if in all varieties the same morbific force underlie the typical character of the disease, the varieties being merely produced by a corresponding variety of conditions; since the conditions under which two forces meet, are as essential to a desired result as the nature of those two forces itself. There can then be (and clinical experiences corroborate that statement) no specific for meningitis in general; but there may be a specific for every form of that pathological state: there may be a group of *specifics* for it. The same may be said of cholera with its varieties, classified under the pathological names of cholera Asiatica, cholera morbus, cholera sicca, &c., and in fact of any other disease, whether we have a particular pathological name for its varieties or not. How else could it be that the king of the so called specifics, Quinine, does not always cure intermittent fever? Is it not the same drug which has removed the periodic fever attacks of four patients? why will it not cure the same, fifth case? —Simply because the fifth case is not the same as the four others; although it looks apparently as such; there must be a specific condition underlying that fifth case for which quinine is no match, has never been a match. Quinine is then no specific for intermittent fever, but a specific for a certain species of intermittent fever, just as arsenic is a specific for another species of the same disease.* Paradox as it may sound, it is nevertheless true, there is no specific for any disease, because there are *many*. Every pathological case constitutes an individuality for itself and must be treated as such.

But while this is—theoretically at least—more or less recognized by the profession, and the hunt after specifics in a therapeutical respect has given way to the more reasonable, and therefore, in its results, more successful task of individualizing, the idea of specifics has not been allowed totally to die out. Abandoned, discarded by therapeutists, it has retired to the camp of the toxicologists, where it figures under the old, time-honored name of a specific *antidote* in full glory. There is undeniably more real and more apparent ground for its flourishing in this quarter. Chemical antidotes

* That quinine cures four-fifths of intermittent fever cases does not prove that it is a specific to the degree of at least four-fifths, but that a certain intermittent fever species occurs four times amongst five cases; other conditions may arise and other drugs may temporarily enjoy the honor of being an antifebrile specific.

are true specifics and have, no doubt, much contributed to keeping up the respect of that more doubtful class of antidotes—the dynamical ones. On the other hand, it must be granted that the latter have a strong pretension to existence, even when the existence of specific *remedies* are strictly denied, or declared as a matter of impossibility. In fact, if it be true that a remedy which once cured a given disease must always do the same, provided all the other circumstances be the same, we have in this very fact the best warranty for the admissibility of specific antidotes, since this class of agents have, unlike the remedial agents in natural diseases, the advantage of dealing in a given case, with a well defined poison, unalterable in its nature and permanent in its character. When quinine does not cure all sorts of intermittent fevers, we are free to think that, there are different species of fever-miasm, embodying accordingly different morbific principles, and that therefore, *quinine*, being always equal to itself, could not prove equally a specific towards morbific principles of a different nature. But suppose now, a man in good health had been poisoned by *quinine*; suppose a drug had been administered, and removed the disastrous consequences, have we henceforth not the best reason to look upon that drug as a specific quinine-antidote? Have we not the right to say: unless Nature be inconstant, unless *quinine* ceases to be *quinine* or that drug which proved itself once antidotic ceases to be "that drug," the result must be the same?

Such seems actually to be the way of reasoning of some Toxicologists; we believe however we are in a position to show, that the idea of specific dynamical antidote is not less erroneous, as that of a therapeutic specific.

(To be continued.)

REVIEW.

চিকিৎসা প্রকরণ এবং চিকিৎসা-তত্ত্ব। শ্রীগঙ্গাপ্রসাদ মুখোপাধ্যায় এম, বি, কর্ত্তৃক সংগৃহীত। প্রথম খণ্ড, কলিকাতা ব্যাপটিষ্ট মিশন প্রেসে মুদ্রিত। শকাব্দা ১৭৯০ ॥

The Principles and Practice of Medicine in Bengali. By Gunga Persaud Mookerjee, M. B., Vol. I. Baptist Mission Press, Calcutta, 1869.

We have, whenever opportunities presented, attempted to vindicate the claims of the graduates of the Medical College of Bengal in Government service, to better consideration than they have hitherto met with. We do this on principle, with a two-fold object, —not merely to see justice done to a most neglected class of public servants, but likewise to prevent deterioration of the efficiency of the service itself. The quality of the article very often depends upon the price people are willing to set upon it. As the demand so the supply. And this is applicable not merely to gross material articles, but even to such articles as human character and human qualification.

Now as we confessed the other day, our pleading in the cause of the Sub-assistant Surgeons has hitherto been in vain; we have well nigh failed to get the ears of the powers that be. We therefore begin pleading in the reverse way. We urge upon our clients to render the justice of their cause too palpable to be overlooked. We urge them to set a new principle of political economy in motion. The article they have hitherto been setting forth has not been able to fetch the price it deserves. Instead of lowering its absolute value, let them improve it, and we can almost assure them they will command, nay, compel better rates. This is our conviction, at least, this is the only remedy. Persistent good work cannot fail to be appreciated. Intellectual and moral qualities will always force attention and command respect. We go so far as to assert, this is the only way of maintaining our individuality as a nation. Physically we are perhaps the weakest nation on the face of the globe. But psychically we are not, and we may yet retrieve our lost name. If we do not, it will be entirely our own fault.

We therefore hail with particular pleasure any the slightest effort at intellectual improvement, inasmuch as such things serve to keep hope alive, the hope, namely, that the preservation of our nationality is still in our hands; or, if we chose other modes of expression, that we can yet take a most important part in the affairs of the world; that degraded and down-trodden as we have been and still are, we need not make our exit from the stage of active existence.

It is a conceit of ours, how far supported by evidence, we cannot stop to discuss,—it is a conceit which is daily gaining ground as a settled conviction, that originality in any department of knowledge, even in those which depend upon pure observation and experiment, can only be attained by cultivating it through the medium of the vernacular. The relationship between thought and language has yet to be made out. But this much is certain, that language is at once the vehicle and the instrument of thought. Thought, therefore, is so thoroughly interwoven with, and dependent upon, language, that for the rapidity of its flow and the fulness of its development, it is necessary that the instrument and the vehicle should be that to which the mind is most used, which is ingrained as it were with it since the dawn of its functional activity.

Moreover it is an acknowledged fact, which our Universities have just begun to act upon, that the mass of the people can only be reached through the medium of the vernacular. To succeed in effecting any reform it is necessary that the reformer should thoroughly sympathise with those among whom it is intended to introduce the reform. And this sympathy is only possible by thinking and feeling with them as well as by making them feel and think with us, which can only be done through their natural language. Whatever value the doctrine of incarnation may have in the field of theology and religion, we cannot help remarking, it embodies a principle co-extensive with human nature. To sympathize with man it was necessary for God himself to bend His awful Majesty down to his lowly condition. In the whole range of philosophy, we venture to say, it would be impossible to find a proposition, a dogma, or a hypothesis, if you will, which so probes human nature to its ultimate depths. And it would be for the weal of our race, if conquerors, rulers, reformers, all of

which ought to be synonymous terms, should always remember the spirit of this dogma, which could only have been conceived by the mind at its sublimest flight.

The above observations might be looked upon as an unwarrantable digression on our part while about to review a work on medicine in Bengali. We do not think so ourselves. We believe a better opportunity could not have presented itself for laying those observations before the public. Additions to the Vernacular literature are, as might now be understood, of the greatest importance. Each addition of real merit is a step in advance, which helps the cause of the country forward. The work before us is one of considerable merit. Judged by the measure of available opportunities for writing such a work, we do not hesitate to say, it could not have been better. We do not mean to say that a better work on medicine could not have been written in Bengali; but could not have been under the circumstances as it is called. There is nothing in the work that may be said to have the faintest odour of originality. It is, in fact, nothing more or better than a translation. It is, however, not a literal translation; and this is great deal; this is laying the foundation of future *attempts* at least to originality.

The work before us affords a satisfactory proof that progress is always a slow and cumulative process. Previous efforts must not only never be despised, but should always be taken advantage of. We are often led to the confines of new truths by the help of the shadows thrown by the errors of the past. We are glad, therefore, to see that Dr. Gunga Persaud Mookerjee acknowledges, in his modest preface, the services rendered to Bengali Medical Literature by his predecessors in authorship.

The work is proposed to be completed in two volumes, of which the first is now given to the public. The getting up of the present volume is excellent, having been printed in one of the best Printing Houses in Calcutta, the Baptist Mission Press. The volume consists of 712 pages Octavo, of which, as the author tells us in the preface, "more than 200 pages have been devoted to the consideration of General Pathology, and with the description of individual diseases their special pathology has been dwelt upon. For the convenience of the practitioner, the Diagnosis and the Treatment of individual diseases have been given rather at length,

considering the size of the book. In those cases, where the diagnosis is difficult and most needful, the special symptoms have been compared in two columns. With regard to treatment," he continues, "the anti-spoliative mode of proceeding, adopted by the most approved and successful practitioners, has been followed, and where definite rules can possibly be laid down, the medicines have been mentioned in the shape of prescriptions."

It should be remembered that the therapeutics of the work is purely allopathic, and it is so far satisfactory that the spoliative antiphlogistic mode of treatment has been eschewed. It would have given us much pleasure if we could say that the author has kept his eye open upon the progress that has been made in this direction even in his own school. For instance, under treatment of Inflammation, while the author has some judicious remarks on the dangers of the old antiphlogistic mode, we do not meet with a word about a drug which is now being largely used, and lauded as a most powerful antiphlogistic, by some of the eminent allopathic physicians of the day, we mean, Aconite. We are almost disinclined to believe, that Dr. Mookerjee should be ignorant of Dr. Reith's papers on the subject that appeared in the *Edinburgh Medical Journal*, for February and April, 1868, and Dr. Samuel Wilks's article that appeared in the *Practitioner* for December, 1868. Is he afraid, then, or ashamed, to allude to this drug, from its being intimately associated with Homœopathy and its founder. For, it was Hahnemann who first discovered the admirable antiphlogistic virtues of this precious plant. Had he done nothing else, we make no hesitation to say, his name would by this time have been immortalized as of one of the greatest benefactors of mankind. He has been eclipsed, so to say, by his own glory.

It is not only in therapeutics, but in other matters, also, we are sorry to find, the author seems to take no notice of recent ideas. Thus for instance, in speaking of the origin of malaria, he alludes only to the two ordinary theories, the theory of its being a product of vegetable decomposition, and the theory of its being a gaseous emanation from marshy or damp soils. He takes no notice of the theory advanced by Dr. Pallas of the French Army in Algeria, according to which, marshes, both in their geographical constitution and in the effects which they produce upon the eco-

nomy, present the greatest analogy to the galvanic pile, and therefore, intermittent fevers are due to the electrical emanations of the marshy pile, and not to miasmata which have been never met with; nor of the microscopic researches of Dr. Salisbury of Cleveland, Ohio, which seem to prove that the so-called malarious Intermittents result from the infection of the system with peculiar species of cryptogamic plants, the germs of which appear to enter the circulation through the air-cells of the lungs. Nor does the author take notice of the fact which we have been so strongly insisting upon in our pages, and which seems to being gradually recognized by the profession, as evidenced by Dr. Cutcliffe's recent observations, the fact, namely, of malarious epidemics invariably breaking out in localities of which the natural drainage has been too suddenly checked either by natural, or as appears more probable, by artificial means.

Again, we had wished to see adopted in the work the nomenclature of diseases lately promulgated by the Royal College of Physicians of London, and which is now superseding that by Dr. Farr. We trust this will be done in a second edition, which we have no doubt will soon be called for.

We must refrain however from being too critical for obvious reasons. As a first attempt, the work before us is admirable. The compilation is elaborate; the descriptions are full and to the point; the diction is clear, simple, and chaste. The author has very judiciously attached greater importance to diseases most prevalent in India, having treated, for example, malarious fevers, diarrhœa, dysentery, cholera, rheumatism, &c., at much greater length than yellow fever, typhus fever, diphtheria, &c. The work, we must admit, displays great zeal, industry, and learning on the part of its author, and we sincerely hope, the sense of solemn responsibility of his calling will soon induce him to shake off the prejudices of his school, and lead him to inquire into the principles and practice of a system that has already effected such a revolution in therapeutics;—a system which, as the author's mind has so justly appreciated the dangers of the old spoliative mode of treatment, ought to command his most serious attention, inasmuch as it religiously "*avoids every thing in the slightest degree enfeebling*, and as much as possible every excitation of pain, for pain also diminishes the strength."

Gleanings from Contemporary Literature.

*On the Physiological Action and Therapeutic Uses of Colocynth.**

By Alfred C. Pope, Esq., of Lee.

Among the oldest constituents of the Materia Medica, and in the early history of medicine, one of the most common of remedies prescribed in a great variety of diseases and in combination with an equally considerable number of other drugs, *colocynth* is at the present day employed by allopathic practitioners only as an ingredient of an aperient pill. Prior to the time of Hahnemann its physiological action was unknown; the diseases which alone it could aid in curing were unrecognised. The accurate information we possess of its physiological properties and of its therapeutic uses we owe, in the *first* instance, to Hahnemann's development of the method of ascertaining the medicinal virtues of drugs, to his clear enunciation of the principle upon which remedies ought to be selected; and *secondly*, to the skill, energy and courage displayed by some of his disciples in submitting themselves to much voluntary suffering, in order to obtain a correct insight into its physiological action. It is impossible to study the experiments of Gerstel, Hausmann, Rothansel, Watzke, Wurmb and others without being struck by the inestimable value of investigations of this kind; and, equally so, without admiring the self-denying zeal with which their painful labours were conducted.

The colocynth or bitter cucumber belongs to the natural order of the Cucurbitaceæ. The part of the plant used in medicine is the fruit, which is imported from Smyrna in a peeled state, and is known in commerce as Turkish colocynth. The pulp is of a whitish yellow colour, inodorous, light, spongy, porous, tough, and nauseously bitter. The seeds are pale in colour and intensely bitter. In the *British Pharmacopœia* an extract is the only officinal preparation. A tincture made from the pulp, after the seeds have been removed, is the form in which it is generally used by homœopathic practitioners. A trituration is, however, also made; and that it retains the active properties of the drug, several important provings undertaken with it fully attest. For the specimens of fruit and tincture I have with me, I am under obligations to Mr. Isaac Thompson, of the firm of Thompson and Capper, of Liverpool. The tincture has been prepared according to the instructions of the Pharmacopœia Committee of the British Homœopathic Society.

The resinoid derived from a watery extract, and termed *colocynthin*, is but little used. Some very characteristic provings made with it by the Vienna Society, evidently show that it is a preparation deserving more attention than that hitherto accorded to it.

The sources from which we derive our knowledge of the physiological action of *colocynth* are the following. *First*, Dr. Watzke has collected a

* Read before the Members of the Northern Homœopathic Medical Association at Bradford, October 9th, 1868.

considerable number of cases where the eating of colocynth apples, or drinking considerable quantities of decoctions made from them, have in some instances placed life in imminent danger, and in others proved fatal. *Secondly*, we have the provings made by Hahnemann and under his supervision. These, with the exception of those of his son Frederick and of Dr. Hornburg, are singularly meagre. *Thirdly*, Professor Martin of Jena and Dr. Hechenberger have contributed some personal experiments, but they do not add much to the information obtained by previous observers. *Lastly*, and chiefly, are we indebted to the members of the Society established in Vienna for the purpose of proving drugs. Seventeen persons were engaged in the proving of *colocynth*, and they record fifty different sets of experiments. Dr. Watzke's monograph containing the details of these experiments has been translated by Dr. Metcalf of New York, and is published in the Appendix to the first volume of the *North American Journal of Homœopathy*.

In proceeding from a study of the experiments thus brought together to present you with an account of the physiological action and therapeutic uses of *colocynth* I propose—*First*, to give a *resumé* of the symptoms or signs of disordered health which follow its use. *Secondly*, I shall examine the conditions under which these symptoms most commonly present themselves. *Thirdly*, I shall point out the tissues to which such symptoms are referable. *Fourthly*, from these facts I shall endeavour to shew to what forms of disease this medicine stands in a homœopathic relation; and *finally*, shall draw your attention to some of the principal medicines presenting an analogous physiological action.

The intensity with which *colocynth* acts, and the area over which its influence is felt, are directly proportioned to the quantity of the drug taken. In the cases of poisoning—cases where one or more apples have been taken—intense pain, described as unutterable colic, together with great heat and tenderness on pressure, are felt in the epigastric region. Vomiting, which gives no relief, and, in some instances, vertigo, fainting and convulsions ensue. The pain, cutting and twisting, rapidly extends, until it involves the whole abdomen. Copious and frequent fluid, and thin feculent evacuations follow, and then comes violent tenesmus of the lowest portion of the bowel, attended with considerable discharges of blood mixed with shreds of false membrane.

The post-mortem examinations of two cases revealed a congested appearance of the whole, and erosions of portions of the mucous membrane of the stomach. Similar appearances were met with in that of the small and large intestines, gradually diminishing in degree as the lower portions of the bowel were approached. In one, death ensued in a few hours; in the other, the victim survived the consequences of his folly three days.

By those who submitted themselves to the influence of this drug for the purpose of ascertaining the nature of its action, it was taken in quantities varying from 10 to 100 drops at a dose. Dr. Arneth and one or two others also made experiments with the 1st, 2nd, 3rd and 4th dilutions. In each instance, symptoms characteristic of *colocynth* were obtained; and in

Dr. Arneth's case, more so than when he was experimenting with tolerably large doses of the pure tincture.

Whereas in the cases of poisoning I have alluded to, the severe epigastric pain followed almost immediately on swallowing the potion, several hours elapsed in the case of the Vienna provers ere the presence of the drug made itself felt.

The following sketch of its effects contains those symptoms which repeatedly occurred to different provers. The first abnormal sensations remarked are bitter taste, eructations with nausea ; burning on the anterior part of the tongue ; burning, scraping and dryness in the pharynx ; burning with tenderness on pressure in the epigastrium ; twisting and griping pain in the umbilical and hypogastric regions, intensely severe in its character ; flatulent distension of the abdomen, and presently violent rectal tenesmus, with urgent calls to stool, followed by gushes of thin pappy evacuations. The intensity of the tenesmus was especially marked in Dr. Hausmann, and was such as on three occasions to paralyse the sphincter ani. The urinary secretion is largely increased ; the calls to evacuate the bladder are both frequent and urgent, and the passage of urine is attended with burning in the urethra.

At the same time that the action of this drug is being felt in the abdomen, effects no less characteristic are experienced in the face and the extremities. In the former, pain is felt in the left frontal and temporal regions, and gradually extends over the left side of the face. It is dull and aching, or burning and cutting in character. Dr. Gerstel's account of his symptoms is one of the best. After taking sixty drops of the tincture he felt a dulness in the left side of the head, with pressing and burning pains in the orbit, temple, side and dorsum of the nose, and in the upper teeth of the same side. Later in the same day there were dulness in the forehead with constrictive and pressing pains in the left malar bone, extending thence into the left ear. On another occasion, a dose of eighty drops was followed by a pressing and dull throbbing in the left temple, gradually becoming acute and cutting ; toothache on the left side, drawing in the lower incisors, and a twitching pain in the lower molars ; exceedingly painful sticking and burning in the edge of upper eyelid ; roaring and feeling of obstruction in the left ear. When the pain in the face was most severe, he felt as though the nose and eye were swelling. That these symptoms are the pure effects of *colocynth*, their frequent repetition in the same prover during his other experiments, and the occurrence, in a greater or less degree, of precisely similar pains in those of Hausmann, Rothansel, Wurmb, Watzke and others abundantly testify. No less constant, and generally simultaneous with the symptoms I have detailed, were others indicating a disordered state of the extremities ; the lower being more affected than the upper, the right side more frequently than the left.

In the nape of the neck we find heat, tearing pain, stiffness, and a sense of weight and pressure.

In the shoulder, arm, forearm and hand, pressing, tearing and drawing pains are chiefly remarked. They appear suddenly, and for the most part

quickly pass away. In the shoulder, wrist, and in the joints of the thumb and little finger, they are of most constant occurrence, and most acute in their character, leaving behind them a sense of tenderness and stiffness, especially in the hand.

In the thigh, the pains drawing, twitching and throbbing, apparently starting from the neighbourhood of the hip-joint, course down its inner and posterior surfaces. Cramp in the inner side of the thigh. Drawing and sense of tension in the patella. Sticking and cramp-like pains and stiffness in the knee-joint, with, in one instance, hot and painful swelling of the patella. In the calf of the leg, cramp-like drawing and tearing pains. Gerstel describes a feeling of numbness along the external side of the right calf, as though in the track of a nerve. The morbid sensation increases as if the nerve were swollen in its periphery; it passes gradually into a dull pressing-constrictive sensation, and slowly disappears.

In the ankle-joint, and throughout the complicated mechanism of the foot, *colocynth* produces considerable disturbance. The character of the pains, varies greatly. Tearing, darting and throbbing, pressive and cramp-like, they occupy chiefly the internal malleoli, the centre of the foot, and the joints of all the toes, but most frequently those of the great toe. In the case of Dr. Weinke, the effects of *colocynth* upon the extremities were very powerfully marked, and made themselves felt long after he had ceased dosing himself with it. He thus sums up the symptoms he remarked in his feet: "A constant dull-pressing cramp-like pain, as if in the periosteum on the dorsum of the right foot, in the scaphoid and internal cuneiform bones; a swelling on the right edge of the tarsus, soft, pale, painless, clearly circumscribed, and as large as a pigeon's egg, appearing like a common lymphatic tumour. The same pains were felt in the left foot as in the right, and in the same spot (sometimes also in the second joint of the great toe,) but less severe, and accompanied by no swelling." Both in the arm and in the leg, motion aggravated the pain, which was also increased towards evening.

Such are the chief, the most uniform, and therefore the most reliable, of the signs of disordered health which follow a daily and determined dosing of oneself with *colocynth*.

I now proceed to examine the conditions under which these symptoms were most prominently marked.

During the whole proving we meet with but comparatively few observations shewing that the desire for food or the power to digest it is interfered with. In some cases, indeed, the appetite is noted as increased. In the cases of poisoning referred to, all mention of the appetite is of course omitted. In these the indications of a morbid process, rapidly tending to destruction of the texture of the stomach, are sufficiently well marked to render any allusions to subordinate symptoms as unnecessary as they are impossible. But in provings with perturbative doses merely, the appetite is as a rule normal and the tongue clean.

But though the desire for food is not diminished, taking it at once rouses the irritation noticed in the umbilical and facial regions.

Relief of abdominal pain followed both alvine and urinary evacuations,

During the whole proving there is but one exception to this rule. The pain appeared to reach its acme immediately before an evacuation, the tenesmus which attended it being severe, and declined with the completion of the discharge; returning as a sense of an approaching stool again came on. Some abatement of the abdominal pains also followed a bending of the body forward, relaxing the muscular structures; while any movement, especially walking, as certainly increased it. To this, however, there were some notable exceptions, where the colic was chiefly felt when resting. The facial pains, too, were most marked when the body was at rest; those in the extremities were generally worse during motion. A degree of periodicity was distinctly marked, most so in the facial pain—the exacerbation being in the evening. *Colocynth* shows also a well-defined preference for the left side of the body in the face, and for the right in the extremities. I do not here wish it to be understood that the symptoms I have detailed *never* occurred on the opposite side, but that they did so only rarely and then comparatively slightly.

It is not unworthy of notice that experimenters of a sanguine temperament were both more readily and more powerfully affected by the *colocynth* than those of a phlegmatic disposition. Viewed in this connection, temperament may be regarded as somewhat of a guide in dictating the choice of a suitable dose in a case to which a remedy is homœopathic. This is one among many points of interest and information lost to us in Hahnemann's provings, from the journals of the provers not having been put within our reach.

It is not a little striking to note, as it is in no small degree conducive to a right pathological interpretation of the disorders *colocynth* excites, that amid all this pain there is no increase of the circulation, there is no real febrile excitement; while, on the other hand, there is evidence of the circulation being depressed. Thus, there is an increased sensibility to atmospheric changes of a depressing character. Each group of pains was increased by exposure to cold or damp air. Frequently the abnormal sensations are described by the phrase "as if after cold;" and as being accompanied by "a chilly feeling over the whole body." Shivering and increase of pain on going into the air are generally remarked. The mucous surfaces exposed to the air were in several provers, and in different experiments by the same prover, the seats of an inflammatory action of a catarrhal character. Thus we find conjunctivitis, irritation of the nasal and throat passages very well marked, and occurring too often to render them liable to be regarded as accidental. Neither is it at all improbable that a drug capable of exciting chilliness, shivering, and a general increase in the susceptibility of the surface to be influenced by cold and damp, should give rise to a more complete development of such sensibility in tissues peculiarly prone, by reason of their situation, to exhibit such results.

Again, as also indicating a depressed condition of the circulation, and at the same time of nervous power, we find all the provers who carried their experiments to any satisfactory length, referring to a sense of lassitude and weariness, of inaptitude for mental and physical exertion.

Having now passed in review the symptoms that presented themselves in these provings, and the conditions in and under which they chiefly occur, I pass on to point out the tissues in which they originate. In doing so there is an obvious convenience in first directing our attention to the abdomen. Here *colocynth* displays a much deeper action than it does in the face and extremities. In the stomach, after poisonous doses, we have abundant evidence of inflammatory action taking place in its mucous membrane. A true gastritis occurs, and that of a severely painful character. Irritability of the same tissue, after doses short of producing destruction of texture, is also observable in the pain, the burning in the tongue, the heat and scraping in the pharynx. But it is in the umbilical and hypogastric regions that the pain of *colocynth* is most marked. It does not take any distinct line, but rather radiates from a centre, gradually extending itself over the whole abdomen. Such pain, unattended as it is, when only perturbative doses are taken, by any evidence of an inflammation, unaccompanied by any increase in the circulation—pain of a burning, twisting, and griping character, readily excited by taking food, relieved by relaxation of the abdominal walls—would seem to point to an irritation of the large ganglia situated beneath the points at which it is first felt, viz., the epigastric or solar plexus, and the hypogastric, with their several offsets. The epigastric pain proceeds from the cœliac plexus, the intense umbilical pain from the superior mesenteric, the increase in the urinary secretion seems due to this irritation, caused by excitement of the renal plexus, the pain and swelling of the testicle remarked by Arneth and Gerstel appear due to irritation caused in the spermatic plexus; while it is to irritation of the hypogastric plexus, with its offsets to the rectum, that we trace the severity of the pain in the lowest part of the abdomen and the tenesmus, which constitutes so prominent a feature in the action of the drug.

But *colocynth* produces more than mere pain in the abdomen. We have evidence that the lower part of the intestine can be pretty extensively congested by it; and not only so but actually inflamed, as is proved by the passage of blood in the first instance, and by that of shreds of false membrane in the second. This I take to be an example of inflammatory action in a mucus tissue arising from perverted innervation. For though it be true that nerve tissues are never continuous with any other tissues in any part of their course, nevertheless, as Professor Rolleston remarked in his recent *Address in Physiology*, "it must be recollected that such intervals as may be demonstrated will be, if not insensible, at all events infinitesimal, and nerve force may well be sufficient to act across such gaps as these." I conclude, therefore, that the action of *colocynth* upon the intestinal canal takes place through the ganglionic masses of the abdomen; that where it developes something in excess of the ordinary signs of merely perverted innervation, the resulting congestion and inflammation arise through the nerves and not through the blood. In the face, the course taken by the pains is that of the two sensory branches of the fifth pair. We can trace it along the opthalmic division with its branches to the orbit, the forehead and the nose; along the superior maxillary, which supplies the integument on the side of the

head, the side of the nose, and the upper lip, the upper teeth, and through the vidian branch of the spheno-palatine ganglion, in connection with the ear. Hence arise the pain, roaring, and sense of obstruction in this organ which are so generally associated with the facial pains of *colocynth*.

The pains in the nape of the neck and in the upper extremity, much less frequently observed than similar pains in the lower extremity, appear to be traceable to the lower cervical, to the circumflex, the median, and ulnar nerves. The character of the pain is in all respects similar to that felt in the lower extremities, save that it is less severe and more transitory.

In the lower extremities the whole of the symptoms point, in a most decided manner, to the sciatic nerve and its branches as the parts primarily affected by *colocynth*. In the thigh, the great sciatic, the lesser sciatic, the middle cutaneous, the muscular branches supplied to the thigh, the internal and external popliteal; in the leg the pains follow the course of these two last-mentioned nerves, which there become the posterior tibial and peroneal, the short or external saphenous, and the two plantar nerves. Its action, well marked as it is in the posterior part of the thigh, is yet more strikingly so in the tarsal and metatarsal joints.

Tracing the symptoms in their anatomical course, comparing them with the general action of the drug, I think we may conclude, first, that it is upon certain nervous masses and tracts that the influence of *colocynth* is primarily exerted; and, secondly, that this influence proceeds from the centre rather than from the periphery, while capable of being moved by the application of an irritant to the periphery of nerves whose centre has already been excited by it.

Further, from the almost entire absence of any indication of paralysis, or of any interference with motor power, we gather that it is chiefly, if not exclusively, the sensory filaments of the affected nerves which are morbidly excited. The only instance of motor nerves being perverted is in the tenesmus of the rectum; and in this portion of the bowel we find the plexus of the sympathetic (which I have regarded as the source of the pain) to be connected with spinal branches from the second, third, and fourth sacral nerves, and consequently rich in motor filaments which the presence of irritating excretions in the rectum would be likely to call into action.

Colocynth, then, we may infer, creates what Romberg terms a neurosis of sensibility. This sensibility is excessive, and is therefore denominated hyperæsthesia. We have no instance of the opposite of this condition, anæsthesia being the result of its action.

I turn now to deduce, under the guidance of the law of similars, from the evidence I have laid before you, the forms of disease which we may rationally hope to cure by means of *colocynth*.

Commencing with diseases of a serious character, we may, I think, expect benefit from *colocynth* in some cases of gastritis, or rather of gastro-enteritis. Cases where the amount of pain is proportionately much greater than any disturbance of the circulation which may be present, would permit us to diagnose as exclusively dependent upon inflammation of the tissues; where the pain is burning and twisting; where it extends more or less over the

whole abdomen, and is accompanied by loose yellowish evacuations, when the cause of the ailment appears to be found in some error in diet or exposure to cold and damp.

To some forms of dysentery it is homœopathic. They are cases quite unconnected with intestinal ulceration, and rather such as are dependent upon congestion of the lower bowel, and where the pain, the twisting, burning pain, and rectal tenesmus, are more remarkable than the dysenteric character of the evacuations, and where relief of pain follows the discharges. In such cases it is an admirable remedy. Watzke doubts its similarity to dysentery; but to make good his doubts he must rely solely upon the provings of the Vienna Society, and ignore those cases of poisoning which he has so carefully collected from various trustworthy sources. In these cases we have all the chief features of dysentery presented to us; and if we do not meet with them when small doses have been experimented with, the inference we may draw, I think, is, that the dose of *colocynth* necessary to cure dysentery is relatively to that required in other disorders the like of which it will more easily provoke—a large one.

It is in umbilical colic—a real hyperæsthesia of the superior mesenteric—and also in hæmorrhoidal colic, proceeding from a similar abnormal state of the hypogastric plexus, that *colocynth* is so generally indicated. The characteristics of the colic to which this drug is homœopathic, are violently twisting, cutting, and griping pains, radiating from the centre of the abdomen; flatulent distention of the bowel; tenesmus of the rectum, attended with urgent calls to stool, followed by gushes of thin, yellowish, pappy evacuations: increased secretion of urine; great restlessness; where the pain is increased by any movement of the body; where some relief follows bending forwards, and the evacuation of the bowel and bladder; where, at the same time, the circulation is undisturbed, and the desire for food not materially impaired; where the attack has followed some error in diet or exposure to cold;—in such cases of colic we shall find *colocynth* our principal remedy.

In neuralgia of the testicle we may, I think, expect some benefit from this remedy. In Dr. Arneth's proving, as also in that of Dr. Gerstel, made with the second decimal dilution of the resinoid, this action of *colocynth* is clear; while Watzke, who was suffering from such an affection, induced, as he believed, by his having been engaged in a proving of common salt, was speedily relieved of the pain and swelling, which occupied the right spermatic cord and testicle, by taking the third decimal of the resinoid. He did so at the suggestion of Gerstel, who was induced to advise it from his having suffered from similar pains in consequence of dosing himself with *colocynth*.

The only two female provers who have tested *colocynth* felt "repeated, isolated, deep stitches, sometimes in the right sometimes in the left flank, apparently connected with the ovaries." Though these symptoms require confirmation before we can extend our confidence to them, still we are not sufficiently rich in medicines proved to influence the ovaries to be able to them over without notice, and without indulging a hope that in some

cases of ovarian excitement of a nervous character *colocynth* may prove useful to us.

The affection of the nerves of the face in which *colocynth* appears to be indicated as a remedy is that known as neuralgia. It is a neuralgia of a purely functional character. One where the irritation giving rise to pain proceeds from the brain to the periphery; not therefore in that form of the disease, where the source of irritation is found at one of the terminal filaments. In the neuralgia to which *colocynth* is homœopathic no muscular twitching occurs—the motor branch of the fifth is hardly at all affected by this drug. It is in a case of simple pain, burning, tearing, aching, and throbbing pain, along the course of the two superior branches, aggravated towards night, and worse when at rest; excited by dietetic errors, or by exposure to cold and damp—that we may expect to cure facial neuralgia with *colocynth*.

In both upper and lower extremities the pain felt is likewise of the type known as neuralgic. There is hardly any indication of muscular pain, no bruised feelling, no twitching or stiffness of muscle. The character of the pain is precisely similar to that met with in the face. Thus in the thigh we have clear indications for its use in sciatica. The sciatica of *colocynth* is, however, a simple form of irritation of the nerve. There is nothing to lead us to suppose that there is any effusion into its sheath. Neither can we hope to cure with *colocynth* those painful affections of the sciatic nerve which are so frequently met with in organic disease of the hip joint. Mere symptom covering, and that, surely, of a very imperfect character, led Stapf to assert that *colocynth* would prove curative in 'morbus coxarius! At the same time, though no such disease as this has ever been cured by *colocynth*, it certainly relieves in a very decided manner the irritability of the sciatic which often, and especially at night, adds so much to the sufferings of the patient. Dr. Drury, at the annual meeting of the *British Homœopathic Society* last summer, read the details of a most interesting case, which had been under his care in the hospital, in which this effect of *colocynth* was very clearly marked. It is useful here as an intercurrent remedy, as a palliative, and as its success does away with the necessity for opiates, its value is very great.

Neuralgias of the calf of the leg call also for *colocynth*. In the joints of the hand and foot the pains are well marked, much more so than in the course of the nerves supplying them. Hence, in pain in these joints, we may frequently find *colocynth* do us good service. I cannot think that we have any reason to suppose from the provings that it is a remedy of primary importance in gout. Certainly it is not so in acute gout, when there is considerable pyrexia, swelling, heat, and redness of the joints. But to neuralgia of a gouty or rheumatic-gouty type, it is clearly homœopathic, and has often given much relief to the very severe pains attending this form of neuralgia.

In the face, in the neck, and upper extremity, as well as in the thigh, leg, and foot, the form of neuralgia simulated by *colocynth* appears to me to be that of the rheumatic or gouty-rheumatic diathesis. The character of the pain, the fact that the joints are all prominently affected, that in the extremities motion so generally increases the suffering, that aggravation of it is so readily induced by cold and damp, all seem to indicate a dyscrasia of this nature. To the neuralgias which arise in the course, or as the result of anæmia, syphilis, or malaria, I do not think that *colocynth* is indicated, or that it is likely to relieve.

We find, then, that this medicine is a remedy in colic, in dysentry, in hæmorrhoidal colic, possibly in neuralgia of the ovaries and testicles, in neuralgia of the two upper divisions of the fifth pair on the left side, and

in a similar form of disease of certain nerves in the upper and lower extremities, when arising from exposure to cold or damp, or called into being by a rheumatic or gouty-rheumatic condition of the constitution.

I think if we bear these conditions in mind, we shall not have much difficulty in selecting *colocynth* from among other remedies also called for in those diseases.

Of all the well-proved medicines in our possession, *colocynth* bears, I think, most analogy to *staphysagria* and *cimicifuga; verbascum* also produces a neuralgia of the fifth, bearing a resemblance to that of *colocynth*. In order to form a correct estimate of the nature of the action of these drugs, we need the provers' diaries, and these we have not.

The facial neuralgia of *staphysagria* differs from that of *colocynth* in proceeding from the periphery to the centre. Thus we have the symptom, "pressure and beating extending from the teeth to the eyes." Almost all the facial pains appear to start from the teeth and gums, upon which *staphysagria* has a very decided action.

The pains in the leg and thigh which *staphysagria* induces, are more muscular than nervous. When pains of a clearly nervous character are remarked, they point to the anterior crural, rather than to the sciatic as their source.

The facial neuralgia of *verbascum* is in many points similar to that of *colocynth*, but in the former the pain is most severely felt at the articulations of the temporal bone with the malar and inferior maxillary. It is a medicine which I should presume would prove useful in facial neuralgia, resulting from syphilis. It presents little analogy to *colocynth* in any other part of its action.

Cimicifuga presents resemblance to *colocynth* in inducing slight facial neuralgia, but on the right side; in giving rise to colic, much less painful, however, than that of *colocynth;* and also on its influence in the sciatic nerve. Here its resemblance to *colocynth* is closest.

In the treatment of colic we have many remedies besides *colocynth* from which to select. The differences are, however, marked with tolerable distinctness.

The colic to which *chamomilla* is homœopathic is one arising from atony of the mucus membrane and glands of the stomach and intestines. Digestion is at a standstill. Great flatulent distention results, and colic-like pain, follows. The neuralgia here is peripheral, not centric in its origin, as in the case of *colocynth*. *Pulsatilla* is another medicine inducing colic under circumstances similar to *chamomilla*. So also does *lycopodium;* and here we have another very well marked distinction in the constipated condition of the bowels it produces. So, too, in the colic of *plumbum*, the motor nerves are the parts chiefly disordered; here also is well marked constipation, no flatulence of any importance, and a retracted, rather than, as in *colocynth*, a distended condition of the abdomen. The colic to which *belladonna* is homœopathic is dependent primarily upon a congested condition of the intestines; there is marked disturbance of the circulation, no relief follows the evacuations. It is rather a form of enteritis than of enteralgia that we can cure with *belladonna*.

The colic of *podophyllum* is a severe and painful disorder. It takes its origin in a depraved and excessive secretion of bile. The derangement of the ganglionic nerves of the abdomen is secondary to this excess of functional action of the liver. In the *colocynth* colic, as we have seen, the first impression is made on the abdominal nerves.—*Monthly Homœopathic Review*, Nov. & Dec., 1868.

HOMŒOPATHIC MEDICAL COLLEGE OF PENNSYLVANIA LIBRARY 1850

THE

CALCUTTA JOURNAL

OF

MEDICINE.

VOL. II **February, 1869.** NO. 2

DR. REITH AND HIS COLLEAGUES; OR THE PROGRESS OF HOMŒOPATHY.

WE left off relating the homœopathic controversy in the Aberdeen Royal Infirmary, at the point where the contending parties appeal to the Managers for decision upon the question at issue—Drs. Harvey and Smith figuring as plaintiffs, representing authority and orthodoxy, Dr. Reith as defendant, representing reason and progress. We cannot help remarking, *in limine*, that nothing can be more painful and humiliating to the profession than to be obliged to refer professional matters to other than professional men. The qualifications necessary to pass an impartial verdict on cases like the present can be nothing short of a thorough acquaintance, theoretical and practical, with medical science in all its branches—and homœopathy having originated in the profession and being followed by many professional men, is necessarily included in it. It is height of folly to expect this knowledge of laymen. How can we expect them then to pass opinion and judgment upon subjects which they know only by name, and perhaps not even that, when those who have made these subjects the study of their lives, are unable to arrive at any conclusion respecting them? In the present case the whole responsibility of dragging the profession before the public and of

bringing disgrace upon it lies upon the shoulders of Drs. Harvey and Smith.

To give the proceedings in connection with the expulsion of Dr. Reith in detail it is necessary to observe that the affairs of the Infirmary are managed by a Committee who hold monthly meetings, as well as by the General Board of Managers which holds quarterly courts. Special courts are also held on special occasions. At each annual court, the whole staff is re-elected, a practice which does not seem to obtain out of Aberdeen. Drs. Harvey and Smith inform the Monthly Committee of the position of Dr. Reith in the Infirmary. Dr. H. and S. having declined to hear again from Dr. Reith, the latter addresses the Committee to shew that his colleagues could never have studied homœopathy nor put it to a practical trial; consequently they only condemn him unheard and presume to disapprove of principles and practices which, confessedly, they are in complete ignorance of. The Committee in their difficulty hand over the entire correspondence to the consulting physicians of the Infirmary, Drs. Dyce and Kilgour, and ask their opinion and advice upon the subject. According to these gentlemen—

"There can be no objection made to any medical man following any mode of treatment he may choose to adopt with his private patients, or such as may come voluntarily under his charge, yet, as homœopathy is not accepted as sound and rational treatment by the medical profession nor by the public, it is certain that an hospital in which such is practised would not possess the confidence of the one party or the other. Those for whom its benefits are intended would not likely be recommended to it by medical men or others; and within its walls there could be no harmonious co-operation, or such a thing as joint consultation on cases, however obscure or dangerous.

It is for the Managers, therefore, more than for us, to consider how far such a state of matters would impair the usefulness of the institution, and along with that the contributions of the public to its funds, or what influence homœopathy might have on the Medical School of Aberdeen, of which the Infirmary is so very important a part."

The Committee of Management did not think they were much enlightened by the above statements of their consulting physicians. They therefore did not deem themselves competent to pronounce upon a subject of such grave importance. They wisely referred the matter to the General Board of Managers, to whom they submitted the entire correspondence along with the report of

Drs. Dyce and Kilgour. A special court of the Managers being about to be held, and fearing lest the insinuations of Drs. Dyce and Kilgour have an injurious effect upon the minds of the Managers, Dr. Reith publishes and circulates among them a pamphlet "containing his views of homœopathy, and the opinions entertained by many eminent physicians who do not entirely approve of it, that they may have an opportunity of judging how far it is consistent with the interests of the institution to exclude from it the use of homœopathic medicines, or to condemn the practice of homœopathy by the medical officers when they shall consider it for the benefit of their patients to employ it." In this pamphlet he arranges the proofs in favor of the truth and immense superiority of homœopathy over all other modes of treatment under three heads:—1. its prevalence, 2. its statistics, 3. the testimony of its opponents, and shows they are overwhelming. Hence: "The crowning sin of the medical profession in this matter is the absolute refusal to look into the subject. They will not make a single experiment. They may have read a few books, but the practical test has never been applied. Their notions of homœopathy are those of total misconception and ignorance. They believe it to be one thing while it is perhaps the opposite. In these circumstances, how intelligent men should set themselves in determined, wilful opposition to a system which they have never tried nor candidly investigated, is beyond comprehension. It brings us back to the days of Galileo, when all the learned of the time argued to their own satisfaction against the great astronomer's statements, *but would not look through the telescope.* Those who simply looked were convinced; as are those who examine homœopathy." Dr. Reith admits there is a great deal of nonsense in homœopathic writings, but "the errors of Hahnemann, and particularly of his followers, do not warrant a wilful rejection of the truth which is enveloped under them. To carry out this principle would compel us to dispense with medical literature altogether; for, how much rubbish appears weekly in the orthodox medical journals!" Another reason which has deterred its advance is the extravagant laudations of it by some of its advocates. But "it is not to be wondered at that those, and there are many such, who have been rescued from death's door by homœopathy should be loud in its

praises. This is both natural and proper." Human nature is inherently just. The contrast between the two systems is so great that those who have had personal opportunities of observing it, are impelled to proclaim it, and impelled the more, by the very injustice which the better system suffers at the hands of the profession.

A special court of the Managers sat on the 10th Nov. 1868, the Lord Provost in the chair. The attendance was very full and the debate was a very warm one. The first speaker, Mr. Neil Smith, moved that the Managers of the Infirmary were not sufficiently advised in regard to the matter in dispute to give at present an intelligent decision upon it, that therefore the subject be remitted back to the Monthly Committee for further inquiry and consideration. He would deprecate any resolutions that might be passed that day which would commit the Managers to any definite course upon a subject on which they were little advised. He could not consider the matter of such extreme urgency as to necessitate its being decided upon in hurry and haste. On the contrary there were circumstances which peremptorily demand ample time and information to enable them to come to a conclusion. He called attention of the Managers to the fact that Dr. Reith delivered, about two years ago, in connection with one of the complainers, Dr. Smith, a course of lectures in which the very views now under dispute were enunciated, without any complaint having been made by his fellow-lecturer at the time. Again, referring to Dr. Reith's pamphlet, he said that there were statements of facts there which would stagger any one to pronounce a sentence of condemnation upon that system and more particularly upon the modified principle on which Dr. Reith has adopted it. He would be afraid of opening the door of repentance and loading his conscience with the feeling that he had done scrimp justice both to an honorable man and what may turn out to be a true and scientific principle. He knew that the statements have been denied by some medical gentlemen; he has called them statements of *facts* because he believes they are given by honorable men; and the very fact of medical men having gone so far as to deny them was, surely in his opinion, a ground for inquiry on the part of the Managers of the infirmary. If these are statements of facts, said he, "I defy any one here openly and fairly to say that a system which

has issued in such results is undeserving of a hearing. And that, my Lord Provost, is all I am asking the Court to commit themselves today—to give Dr. Reith a hearing."

The Rev. Mr. Macphail in seconding the resolutions would wish with the Managers to keep in mind that they had to deal with no less a subject than the freedom of medical practice in the hospital. He reminded the meeting that Dr. Reith was admitted by the very gentlemen who have made the complaint against him to be "a man imbued with a great zeal for science, and a man who has a thorough love of his profession." He therefore feared it would be "a very serious thing for the institution in any circumstances to lay an authoritative arrest upon the free exercise of his judgment by a man of science like this—a man so highly educated as Dr. Reith is on every hand acknowledged to be." In looking at the report of the consulting physicians he found that they laid considerable stress upon this, that consultation might be refused, especially in obscure and dangerous cases. That he thought was unreasonable, "because avowedly men were entirely at fault in regard to these cases, and they were the very cases with regard to which they should be ready to welcome light even from an opponent, if an opponent could cast any light upon it. This he thought was the effect of professional prejudice, and he believed that the proclamation by the Managers of the Infirmary of freedom of practice would be one of the likeliest ways to break down the prejudice." Reference, he said, has been made to the public. He as one of them was convinced that the public have confidence in men, not in medicines, about which they generally know nothing. Give them a thoroughly educated man who knows disease and drugs, and who is conscientious in the discharge of his profession, and they will accept that man, and trust themselves in his hands to be cured.

The Rev. Dr. Pirie delivered himself of a speech of "characteristic volubility and vehemence." He could not agree with Mr. Smith in thinking that the matter under consideration was not an urgent one. He thought the very reverse. He believed it involved an important principle and had not both the gentlemen that had gone before him pleaded the question on false principles, he would not have cared much for it in the present instance. Now if the matter were sent back to the monthly committee or

any committee, what was it they would have to inquire into. Mr. Smith has not told them that, and he was not surprised, as it was next to impossible to do so. As far as he (Dr. Pirie) could see, there were only two points that it was possible to inquire into. The first was an examination of their medical men as to the respective merits of homœopathy and the orthodox system. That he said was impossible. They were no judges. There was only another thing they could possibly inquire into, and that was, whether the profession at large, or the legally-constituted medical courts of the Kingdom, considered this system one of quackery or not. There was no difference of opinion on that point, and Dr. Reith himself has told them that. Thus the whole question happened to be within a nut-shell. On what conditions were the medical men appointed in the institution? They were no doubt elected by virtue of their holding degrees or diplomas from the regular Colleges or Halls of the Medical Profession, and they were certainly expected to practise in conformity with the views of these legally constituted medical courts; and unquestionably they as Managers could not sanction their doing otherwise, for he was sure that any medical man who would express views in opposition to those of these courts at their final examination would surely be rejected. Dr. Reith disclaiming the title of a pure homœopathist and avowing himself an eclectic was, in the opinion of this Rev. gentleman, tantamount to being bound by no rules whatever, doing just as one liked, and this view appeared to him to render all medical education unnecessary. He therefore objected to any medical gentleman being introduced who would make use of the Infirmary for making experiments. They would be rendering themselves responsible for the consequences of malpractice if they do. "The Rev. gentleman then attempted a little intimidation, and threatened the Managers with the resignation of their entire staff if they did not pay off Dr. Reith and turn him adrift at once."

The Rev. Mr. Stephens spoke in support of Dr. Reith, admiring his boldness and ingenuousness in coming forward in defence of a system which he but partially adopted. He therefore urged a delay of ten days, to which Dr. Pirie had no objection, although one Mr. Lumsden said there was no necessity whatever for delay.

Dr. G. G. Brown, a surgeon retired from the service of the late H. E. I. C, said, in reference to what Dr. Pirie had told about established colleges, that "if it were as he (Dr. P.) described, the medical profession would be tied down hopelessly by certain rules and regulations, so that if the thing had gone on sufficiently long, medical science now would have been no further advanced than in the days of Hippocrates."

Mr. Webster, advocate, thought the jarring and dissension among their medical officers as very unfortunate, nevertheless he had decided objections to dismissing Dr. Reith. Nothing has been said in regard to Dr. Reith, either in the correspondence or at the meeting that day which should induce them to inflict such a stigma and such a penalty upon him. He was satisfied from reading Dr. Reith's pamphlet that there was a good deal of misconception abroad on the matter. Though Dr. Reith holds views with regard to treatment different from the majority of his colleagues and brethren, he was not an extreme homœopathist. Dr. Reith's position appeared to Mr. Webster to be this, that he holds the theory (of homœopathy) to be right but inapplicable in a great number of important cases; that in every case coming before him, as a medical man, he adopts the course that his own experience and judgment independently suggest. The course of dismissing him therefore would be to blindly shut the door to improvement. There was nothing in the charter binding them, as Dr. Pirie had said, to appoint men holding particular views, though, of course, they would only appoint those who possessed the necessary diploma. He was not aware that the medical halls had ever pronounced any such judgment against homœopathy as Dr. Pirie has said they have. Dr. Reith retains his diploma which in that case he would lose. If any body should tell them that on the modified way in which he teaches homœopathy, Dr. Reith must submit to such a judgment, he (Mr. Webster) should listen with unfeigned respect to the judgment. But there was no such statement before them, and there was no injury alleged to patients from the treatment adopted by Dr. Reith. With these remarks he begged to move—

"That the meeting, while regretting the unfortunate divisions which exist among the medical officers as disclosed by the correspondence before them, do not think it necessary to pronounce an opinion at present upon

the professional questions therein involved, leaving it to the Quarterly Court, when the staff falls to be elected, to deal with the whole matter, if it then appear advisable."

After some further remarks, the motion was unanimously carried.

The time intervening between the meeting that was thus over and the meeting of the Quarterly Court, which was also the annual meeting, when the staff falls to be elected, was not idly spent by the parties. Dr. Reith's pamphlet having appeared staggering to many and shaken their faith in orthodoxy, Dr. Harvey publishes as an antidote and a counter-irritant his *Four Letters on Homœopathy* to which Dr. Reith loses no time in administering a vigorous reply. The *Four Letters* being found unavailing, and the strength of Dr. Reith, as the day of re-election approached, increasing unmistakably in spite of them, his colleagues have now recourse to a most dastardly and shameful course to prevent his re-election. They hand over to the Provost a letter which has been well described as a strike and a medical stamp-out. It is impossible to conceive a more convincing proof of conscious weakness than this.

The Quarterly Court met on the 14th December 1868. The Provost in opening the proceedings said, that after the opinion they had received from their consulting physicians they were bound to acquiesce in it and to accept it as a just and proper decision for them to go by. He would therefore move the following Resolution:—

"The Managers having had under consideration the correspondence between Drs. Harvey, Smith, and Reith, and also the report of the two consulting physicians thereon, consider it to be for the best interests of this institution to be guided by that Report, and not to permit the use of homœopathic medicines in the Infirmary. Further, having regard to the correspondence, and various publications which have been furnished by these medical gentlemen to the Managers, as well as to the almost unanimously expressed opinion of the medical men of the city and district which is entirely adverse to the practice of homœopathy, they do not consider it advisable to give countenance to it in the institution."

In reference to the letter which he has received from the colleagues of Dr. Reith that morning he said, "He did not know if he should give expression to the opinion of the medical men as that had been expressed. He would however take it upon him to do so—not that they gave him permission to do so (!) but that a document

was put into his hands (for what purpose?). They did not wish anything to appear as if coming from them in the way of a threat, but he might tell the meeting that day, that if they allowed the practice of homœopathy, the medical men of the institution would instantly tender their resignations. He therefore thought it better that the Managers should enter upon the discussion with their eyes open to the consequences. If this was *not* a threat, what was it? The letter was then read, and it was as follows:—

"Aberdeen, 12th December, 1868.

"*To the President and Managers of the Aberdeen Royal Infirmary.*

"Gentlemen,—Whereas homœopathy has not received the sanction of the medical profession, and whereas it is, in our opinion, both unsound and irrational, we, the undersigned, beg with all respect to acquaint you with our conviction that it would not be honest in us to remain connected with an institution in which that system is recognised.

"We have no right, nor have we any desire to dictate to you in regard to the choice of any of your medical officers. If it be your pleasure, on Monday next, to re-elect Dr. Keith, well and good. But in that case we consider that you will thereby virtually give your sanction to the introduction of homœopathy into your institution.

"Therefore, in that event, and in the event also of our own re-election, there would be but one course open to us, namely, that of resignation.

"Thanking you for the consideration you have always shown us, and for the confidence you have hitherto placed in us,

"We have the honour to be, Gentlemen,

"Your most obedient Servants,

"Ro. Dyce, "David Fiddes,
"Al. Kilgour, "Alex. Harvey,
"Wm. Keith, "J. W. F. Smith,
"William Pirie, "Alex. Ogston."
"David Kerr,

In seconding the Provost's resolution Mr. Hugh Ross said that he had looked at the matter in a practical light, apart altogether from the merit or assumed merit of homœopathy on the one hand or of allopathy on the other, and that looking in that light he was of opinion that it was essential to the prosperity and the efficiency alike of the institution that its medical officers should have sympathy with each other's views and opinions, without which harmony and co-operation would be impossible; that therefore he was decidedly of opinion that the disciples of the two medical schools would never be got to act in concert, in which case they

would be shut up to the alternative of making the institution either altogether homœopathic or altogether allopathic, for it could not be both, and this, said he, accorded with fact, not only in Great Britain, but all over the world. In the event of their identifying themselves with homœopathy, not only have they to look to the consequences to the institution as a hospital, but as a medical school likewise. It was a fact (a notorious one he should have said) that all Government appointments were shut to the disciples of homœopathy. Now students came there with the view of either entering the navy or the army, or of taking some other appointment under Government, and it was not to be supposed that the parents and guardians of young men would send them to this quarter when Edinburgh and other places were open to them. He could not believe that what they proposed, if carried out, would put an end to progress, for as medical science progressed (how can it under such arbitrary conditions?) new and better modes of treatment would be sanctioned by the medical profession, and he thought it was high time for gentlemen in the position of Managers of the Infirmary to adopt these when sanctioned by the Medical Faculty.

Mr. Advocate Webster was prepared to have moved a different resolution from that of the Lord Provost, but the intimidation by the medical officers has brought matters to a stand-still. When at last meeting he made a motion he supposed one of three things might happen, either that the allegation be made and supported, of want of skill, maltreatment, or want of attention on the part of Dr. Reith; or that his colleagues might refuse to consult with him; or that the public generally might express distrust, dissatisfaction, or want of confidence in his treatment, or in the Infirmary generally, while he remained in it. The first and third views have been disposed of. The public have certainly expressed no dissatisfaction, on the contrary the sympathy of the public seemed to be with Dr. Reith. Again the medical officers themselves, far from bringing against him any charge of unskilfulness, testify to his zeal and ability and devotion to duty. He was therefore surprized to find them unanimous in refusing to consult with him. To insist upon Dr. Reith's re-election would it appears involve total disorganization of the Infirmary, which those who were prepared upon the merits could not possibly

think of bringing about. It should be distinctly understood therefore where the cause of this resolution emanated from, that the *onus* of Dr. Reith's dismissal lay upon his colleagues. He would let the Provost's motion pass, if, in the interests of fair play, an opportunity were afforded those who dissent from the resolution of expressing that dissent fairly and temperately upon the records of the institution.

Mr. Neil Smith most deeply regretted the circumstances in which the Managers found themselves placed that day. He was quite unprepared for the announcement made by the medical officers, he could not sympathize with it, especially as it has been made *before* the result of that day's proceedings, he therefore deprecated and deplored it beyond measure, as putting aside all amelioration of medical science. He might be wrong, but that was the view he took of it, and he must be allowed to express it; he did not think that any gentleman in the teeth of the resolution come to that day would readily adopt any plan however seemingly favourable in the way of curing disease different in the slightest degree from the established way. It was not true that the poor came there to be treated allopathically; when they come to hospital they trust themselves in the hands of men who had been appointed as fully qualified. He joined cordially in the dissent of Mr. Webster.

Dr. Pirie said that if the medical gentlemen had given their opinion *after* the proceedings of the meeting they would have plunged them into confusion and disorder, and would thus have done a thing dishonorable to themselves and pernicious to the interests of the patients in the Infirmary. Again, homœopathy having been already investigated, and the whole medical profession having been unanimous in declaring it to be unsound, delusive and unfounded, he could not agree with Mr. Smith that to discountenance its practice in the Infirmary would be to check all improvement in medical science. He was prepared to read the opinion, if necessary, not only of the Medical Society of Paris, but also of the Royal Colleges of London and Edinburgh (as if these bodies were the depositories of absolute truth in medicine and as if they have never denounced theories and facts which are now recognized as established in spite of those denunciations of byegone days). Mr. Webster would lay the *onus* on the medi-

cal gentlemen. He (Dr. P.) would like to know upon whom was it to be laid, if not upon them, and not only upon them, but upon every legally constituted medical court in the Kingdom. He was so convinced (it must have been by supernatural evidence) of homœopathy being opposed to a regular system of science, that he would not change his mind, even if Dr. Kilgour—among the oldest and most valued of his friends,—had advocated it.

Dr. Ogilvie defended the step taken by the medical men, first, on the ground that consultation would be arrested, and secondly, because it was natural that the gentlemen connected with the medical school should feel naturally sensitive for the honor of that school. The principle of homœopathy was false, being a law of similars, a dogmatic law, demanding that all inquiry should proceed under it, whereas the rational mode laid down no bounds to the progress of science. According to this view, then, the discovery of a law of nature would be fatal to all progress.

Rev. J. Stephen hoped it to be understood by the public, that they (the Managers) were deprived of the liberty of expressing their minds, their mouths having been stopped by the medical men. He did not believe that homœopathy was considered false unanimously by the medical Profession, as Dr. Pirie would have it.

Principal Campbell went so far as to congratulate them upon the resolution they were about to arrive at. He thought the step taken by the medical men a wise and honorable one; for to allow the various gentlemen to be committed to a course of action, and their speeches to appear in the papers, and then when victory was hanging in the balance, and probably (we would say *certainly*) had been gained by the party favourable to homœopathy, they had then produced their resignations, the conclusion would have been something that Aberdeen would have had reason to be ashamed of, as if Aberdeen has not now more reasons to be so. It was extremely difficult for laymen like him to express any opinion upon the merits or demerits of homœopathy, yet he thought (!) reasons could be shown why those who practised homœopathy should be excommunicated. One reason was in the conduct of homœopathy itself; its founder rushed at once to a fixed principle, and by this principle or hypothesis, for it was nothing more, barred the door to all induction and experiment,

and therefore to scientific improvement. In addition to this, where men and women are found who know nothing about the human frame going about dispensing these medicines, it could not but be that a strong feeling should exist in the medical mind. Does Principal Campbell mean to say that amateur and domestic medication is confined to homœopathy?

Dr. G. G. Brown said "the discussion has been closed by the very successful operation of a strike of the general body of the medical men. He regretted that such a course should have been adopted, although he should be the last person in the world to encroach on the privileges of the medical profession. He could not admire the conduct of those gentlemen who had come forward and shut their mouths on this subject by saying they would resign. He was neither a homœopathist nor an allopathist, but he thought it right to cultivate science freely; and it was in vain to tell people that investigation in any particular branch of science was to be advanced by thrusting men out of the position in which they were, and that by so doing they were not injuring the profession and the whole domain of science generally."

Mr. Bruce (one of the working men's representatives) deprecated the threat held out by the medical men. He protested against Dr. Pirie's calling Dr. Reith an experimenter (Dr. P. strangely enough denied having said so, swallowing his own words). He continued telling that the last gentleman (Principal Campbell) who spoke indicated that if it had not been for this letter there might have been a majority in favor of re-electing Dr. Reith (here Principal C. cried out—I never indicated any thing of the kind, and the Provost—I think Mr. Bruce you are going too far), but Mr. Bruce continued undaunted—"I think what Principal Campbell said was, that it would have created great confusion if, after the matter had been allowed to go to the vote, in which case, it might have gone in favor of the homœopathists, and the division lists appeared in the papers, the medical men had resigned. That was admitting that Dr. Reith might have had a majority. He would not have said all this had he not believed that he came there as representing the opinion of the public. Some gentlemen seemed to laugh at that remark. To some gentlemen public opinion might not be of much importance,

who preferred the side of exclusiveness and bigotry, but whether it was right or wrong, it generally tended rather to the side of toleration than of bigotry and intolerance, and in this case they had a clear issue before them, and mere dogmatism and sectarian intolerance ought not to be tolerated."

The following is amusing and interesting:—

"Sheriff Thomson—Would you have any objections, my Lord, to add to your motion reference to the medical gentlemen's letter?

The Provost—Well, I would rather not.

The Sheriff—It is of some little consequence that you should say yes or no.

The Provost—Then I decline to do so. I especially framed my motion that it might not commit the medical men."

Major Innes of Learnay expressed regret and surprise that the question had been at all brought before them, and having been brought was argued with so much heat and partizanship, which as Managers they were bound to consider with the greatest possible temperance and discretion. Whatever might have been the motives of the medical men they deserved thanks for relieving the Managers of the necessity of discussing the question for which they were not competent—the subject of homœopathic treatment. He would ask the Lord Provost to eliminate from the terms of his motion any thing that might seem to compromise the question. The terms used committed the Managers to saying that homœopathic medicines could not be permitted to be used in the Infirmary. The whole question could be settled without that by a resolution simply to the effect that the practice of homœopathic treatment in the Infirmary was not consistent with the practical working of the institution. His motion however was not even seconded.

The attempt failed also even to get a clause inserted in the resolution making reference to the medical men's letter as one reason for the decision come to by the meeting. The Provost's resolution was therefore carried, and the physicians and surgeons of the Infirmary were then re-elected without Dr. Reith.

Thus once again a signal instance of the triumph of conservatism over progress, of authority over reason, has to be recorded in dismal characters in the pages of the world's history. The Aberdeen doctors did indeed obtain victory over a colleague who had dared to think out of his profession, but the way in which the victory was obtained will ever remain memorable as the most

shameful that could be conceived. In an age pre-eminently characterized by freedom of inquiry in all the branches of knowledge, and in a profession the most responsible on earth, the attempt succeeds to smother the spirit of free inquiry, to stifle the voice of conscience, and succeeds by the use of means which the meanest artizan would now be ashamed of using. For men pretending to belong to the fraternity of science, to make use of the threat of a strike to crush a colleague, by their own admission "a man imbued with a great zeal for science, and a man who has a thorough love of his profession," simply because of difference of opinion, is the lowest sort of trades-unionism imaginable, and a strange phenomenon in the nineteenth century. Nevertheless in the wisdom of one medical Weekly of England, the *British Medical Journal*, this was "a firm, clear and judicious course, which has satisfactorily settled the question raised by the introduction of homœopathic practice into the Infirmary;" of another, the *Lancet*, "a wise and just course, taken with a view to prevent the Infirmary from being utterly disorganized by the resignation of the entire staff." And most singular enough, the very Journal (the *Edinburgh Medical*) which did not hesitate to publish Dr. Reith's papers, lauds his colleagues as having "done a noble duty, and saved the reputation of their medical school from imminent peril." The Editor of the *Medical Times and Gazette* is more just. He "can only regret that men who are well qualified to advance the profession of legitimate medicine should be seduced by such dogmatic and mythical nonsense as homœopathy." For our part *we* only regret that Editors, wise in their own conceit, should not think it necessary to re-consider their opinion about homœopathy when they find it advocated, after an impartial and only fair, because practical investigation, by men admitted to be well qualified to advance legitimate medicine.

But the Managers of the Infirmary can no more be exonerated from the sin of sacrificing truth and an honorable man than the medical officers. They had a clear case before them. One of their medical officers was charged by his colleagues with, be it remembered, not malpractice, want of knowledge and skill, or of devotion to his duties, but differing from them in opinion, as if they themselves agreed with each other in all points.

If there was any doubt in the minds of the Managers as to the necessity of toleration in matters medical, after the perusal of Dr. Reith's pamphlet, it should have been removed by the perusal of Dr. Harvey's. There is a strange inconsistency in the very preface itself. Dr. Harvey wishes it to be understood that his pamphlet, or as he calls it this passage of arms, is to be one decisive battle between him and Dr. Reith. If he is slain in the combat, there will be an end of him and it. Should he survive, and should he live to fight another day, it will not be again on this field; and although Dr. Reith might challenge him to it, he would not accept the challenge—unless indeed his honor were touched. And yet what have we in the next paragraph? "Let us have a stand-up fight, Dr. Reith; but let there be fair play on both sides." In the body of the pamphlet we have most curious specimens of scientific reasoning.

In the first letter, Dr. Harvey defends the intolerance of the profession towards homœopathy with a barefacedness which is equalled only by the quality of the argumentation. It is enough to say that he brings in the ecclesiastical element to help him in the matter. The Profession is likened unto the church, and though "there are no Thirty-nine Articles in medicine, there are among us," says he, "accepted beliefs and common usages," and boastingly adds, "and there is this also among us, a thorough repugnance to homœopathy, as one of the most offensive, because most pretentious, forms of charlatanism." "Homœopathy is to us, in fact, what Ritualism or Socinianism is to the church, *and it is not, and never will be, tolerated by us.* Are we to be charged with intolerance on that account?"

The second letter of Dr. Harvey is occupied with the consideration of the law of similars. We have here an amount of ignorance displayed which is astonishing. There is a total misconception of the terms *Nature* and *laws of nature*. Dr. Harvey can only understand a law of Nature as a "law by which *Nature herself works* in the production of certain results, or the maintenance of certain arrangements. All other laws, therefore, by which Nature *herself* does not work, are not to be regarded as laws of nature. The hydrodynamic laws by which steam is governed are not laws of nature, because Nature is no where seen to work by steam-engines. The laws of electricity which have

been taken advantage of to produce one of the most wonderful inventions for man's benefit cannot be called laws of nature, because Nature is no where seen to send messages by the telegraph. The laws of light as displayed in photography are not laws of nature, because Nature *herself* has never been seen to take pictures of her objects by the photographic process. What after all is this Nature? Is man out of her domain? Whenever man discovers her laws, the principles or ways by which she works, and thus takes advantage of his knowledge of those laws for the production of certain results, he never takes credit to himself as having created those results. All that he does and can do is to *col*-locate or *dis*-locate, to put things together or asunder, Nature in every instance works the rest. Dr. Harvey evidently labours under a confusion. He takes nature in two senses and confounds them. Sometimes nature is the whole of the Universe, some times it is the *vis medicatrix*, the inherent power in all living organisms by which their equilibrium is restored whenever lost. Referring to nature in this latter sense, Dr. Harvey enunciates "the accepted orthodox dogma" of therapeutics into the formula *Natura Sanat, Medicus curat—morbos.* "In this dogma, Nature is credited, substantially, with the work of healing; the physician with the work of nursing and aiding." What does this aiding and nursing mean? If it means more than attending to the dietetic and hygienic measures, if it includes the administration of remedies, then the orthodox physician fares no better than the homœopath. Drugs are administered with some object, with some intention. What is this, and how is it learnt? Is it gathered from attending to the natural history of disease? In some cases we can, but not in all. It cannot be said that there are provisions in nature for the spontaneous decline and favorable termination of *all* diseases. It is notorious that this *vis medicatrix* "*cannot* bring together the gaping lips of a wound and by their union effect a cure; *cannot* put a ligature on a wounded artery, but in its energy causes the patient to bleed to death; does *not* understand how to reduce a dislocated shoulder but by the swelling it occasions round about it soon presents an obstacle to reduction; in order to remove a foreign body from the cornea, destroys the whole eye by suppuration; with all its efforts can only liberate a strangulated

hernia by gangrene of the bowel and death; and by the metastases it produces in dynamic diseases, often renders them much worse than they originally were." We should carefully study the natural history of disease not that we may blindly imitate all the proceedings of nature, but that we may be enabled to judge how far she can be trusted with her own resources, and when we should step in either to assist her healing or thwart her destructive purposes.

But the most curious, and what Dr. Harvey perhaps thinks, the strongest argument against homœopathy is contained in his third letter. He cannot admit the efficacy of homœopathic medicines in the cure of disease, because their administration is followed only by subsidence of the disease, and by no sensible manifestations or perturbations of the system. "With us, as with the homœopaths," says he, "the *ultima ratio* often is simply, in the final result—the subsidence of the disease. But then as to this, there is this difference between the homœopaths and us—to wit, that in all, or in almost all cases, they have no other criterion to judge by; while we, exhibiting drugs in larger doses, have for the most part *sensible manifestations* of their action, that is, certain overt phenomena *intervening* between the application of the remedy and the subsidence of the disease—phenomena that enable us, more or less confidently, as the case may be, to connect the two as standing to each other in the relation of *cause* and *effect*." Not to speak of the absurd logic here displayed, the Professor of Materia Medica has convicted himself of the grossest ignorance even in his own province. What becomes in his hands of the large class of alterative medicines, he alone can tell.

We must here terminate our narration of the homœopathic controversy in Aberdeen. It has already occupied so much of our space that we cannot allow it to occupy more, not withstanding that we are conscious that we have not been able to review all the points brought to light by the controversy. We must however in passing notice two opinions which have been expressed in connection with this subject. One is by Prof. Henderson, who holds that a physician to a public hospital, on becoming convinced that homœopathy is true, is bound forthwith to resign his office, first because existing public Infirmaries are *allopathic*, and secondly because in homœopathic hospitals no allopathic physician would

be allowed to practise. The other is the opinion passed by the Editor of the *Monthly Homœopathic Review* on this opinion of Dr. Henderson. According to the Reviewer "each reason (as advanced by Dr. H.) involves a fallacy. Public Infirmaries were founded not to illustrate any special mode of treatment, but simply to cure disease in the manner the appointed medical officers deem the best, in that which their study and experience have proved to them is the best. Managers and Boards of Governors have no right to criticise treatment, unless, indeed, it be found to be exceptionally fatal. It is with results that they have to deal, not with the mode of obtaining them. If Dr. Henderson's views were correct, every improvement in therapeutics would be admissible in a public institution save one, and that one the most important in the whole history of medicine—homœopathy. 2nd. Homœopathic hospitals are *special* hospitals—special therapeutic hospitals, established to illustrate and teach a special mode of cure. They are the necessities of the narrow-minded spirit which operates among the governors and medical staffs of our large hospitals, preventing the light of homœopathy from being felt in these institutions. They are supplementary to the general infirmaries." *(Monthly Hom. Rev.*, Jan. 1869.*)*

We must confess we have been sadly disappointed by this piece of reasoning. The first argument contradicts the second. We do not think Dr. Henderson is right to enjoin physicians of public hospitals on becoming convinced of the truth of homœopathy forthwith to resign, because then consistently every physician so circumstanced ought to resign, whenever he would become convinced of the superior efficacy of any new method of treatment other than that pursued in the institution to which he belongs, as for instance *acupressure* in stopping bleeding vessels. And so long as physicians do not do this we do not believe any one is bound to resign the moment he becomes convinced of the superiority of homœopathic over ordinary treatment. We do not understand however on the other hand why homœopathic hospitals should be *special* hospitals, why they should be looked upon in the light of *supplementary* hospitals. In special hospitals cases are selected. Do the hospitals that pass by the name of homœopathic select cases, or do they admit all cases? If cases are selected, we have no objection to their being *special* hospitals. But if all cases are admitted, which

we believe is the case, then they can by no means be called special hospitals. To say that homœopathic hospitals are special hospitals, supplementary to the general hospitals, is to admit that homœopathy is not sufficient to the treatment of all cases, that cases not amenable to homœopathic treatment must be treated after the orthodox system. Now who is to decide what cases are best treated homœopathically, and what best treated allopathically? A man who has received no other than allopathic training cannot decide this, but neither can one who has received no other than homœopathic training, if such an one there be, at least in Great Britain. An allopathic physician cannot be appointed to a homœopathic hospital, or rather a hospital which recognizes homœopathy as the best of the existing systems of treatment in the majority of cases, for the simple reason of his ignorance of that system. And in the present state of medicine, hospitals ought neither to be exclusively allopathic nor exclusively homœopathic. In an allopathic hospital every improvement in therapeutics would be admissible save one. In a purely homœopathic hospital all improvement in therapeutics is shut out, save one. If therefore the medical officers of an allopathic hospital ought not to be tied down to a particular line of treatment, much less ought the medical officers of a homœopathic one. There is some excuse, the excuse of ignorance, in the one case; there is none in the other. For men who have themselves with much difficulty and at much sacrifice emerged from ignorance, prejudice, and bigotry, to bind themselves and require others to be bound to any system of therapeutics, however superior it may be, as far as the present state of knowledge goes, would be to take the last plunge into the slough of ignorance, prejudice, and bigotry, worse than they had emerged from, and never to rise again.

THE CIVIL MEDICAL DEPARTMENT.

The Government of India has at last found it necessary to turn its attention to the administration of the Civil Medical Department under each Local Government. This is evident from the Home Department Resolution on the duties of local Sanitary Commissioners, which was published in the *Gazette of India* of 17th

October last. The time is therefore come to offer certain suggestions in reference to this question. Of all the public departments under the British Government in India, the Civil Medical Department, that is to say, the Department which is to take care of the health of the civil population, has till lately been most neglected. Lord Dalhousie with his characteristic discernment, had perceived the manifold evils of allowing one Department to be presided over by several individuals, when, on the eve of his departure from India, he recommended the abolition of the old Medical Board, along with some other Boards. But he failed to perceive the impolicy of continuing the Civil Medical Department under the supervision of an officer, whose chief concern is with the army, and to whose Deputies the same remark is no less applicable in an equal degree. True it is that the supervising staff of the Indian Medical Department was some three years ago relieved of its duties in connexion with the European troops, and that it now devotes more time and attention to its civil duties having reference chiefly to the Government of Bengal. But little substantial good seems to have flowed as yet from this measure. The supervision has been at the best little more than nominal. This result might be partly attributed to the principle of seniority which appears mainly to guide the Government in the selection of the head of the department as well as that of his deputies—a principle which is elsewhere more honored in the breach than the observance. But, whatever might be the cause, it is becoming patent day by day that this supervising staff is not adequate to meet the present demands of the several Local Governments.

We have above alluded to the defects in the supervising staff of the Civil Medical Department. To understand this subject thoroughly it is necessary to enter into details, to take a broad view of the organization of the Department. But the internal arrangements and the exact workings of the Civil Medical Department are not well known to the outside public. Neither has the Indian Government taken any steps as yet to obtain and supply the information to that public. If the Government had been wise enough to take this step, we make no doubt but that it would have received material assistance from public discussions in coming to a satisfactory solution of the present difficulty.

Instead of this, however, it has followed its policy of reticence, in the settlement of so general a question as the present, and is almost sure to commit some gross blunders as it is known to have done in several cases under precisely similar circumstances.

The chief duties of the Civil Medical Department embrace prisons, vaccine operations, hospitals and dispensaries, insane asylums, medical colleges and schools, duties which have been lately entrusted to the Sanitary Commissioners, and questions of a general nature, involving a knowledge of the medical sciences, which frequently come before the Local Governments for solution.

As regards jails or prisons, there is an Inspector General in every province in British India (Oudh alone excepted, where the duties in question are performed by the Sanitary Commissioner), "who is responsible for the proper management of the jails under his charge, and is the adviser of the Local Government in matters of prison discipline." Then again there is a Superintendent for each central and district jail with a proper staff of establishments under him; and generally speaking, both the medical and administrative charges are entrusted to him, in immediate subordination to the Inspector General of the Province. Thus the whole form as it were a separate Department of each Government or administration, and the occasional visits of inspection paid by the district authorities to jails within their jurisdiction, exercise a beneficial check upon the officers in charge. To complete the efficient working of this Department, the Home Department of the Government of India has recently undertaken to prepare a general report on jails and jail discipline in which a comparative view is given of the workings of jails in all British India. As this review is made by an Under Secretary, it embraces notice of the administrative charges only, and is generally characterized by an absence of the critical spirit, in consequence of which the comparative efficiency of the Department, under each administration, is not clearly exhibited, so that virtually little real check is imposed upon the Local Inspector Generals. As regards the medical charges of jails, the labours of the Department do not pass under the review of any public functionary, and yet these duties are no less important than the others.

Then again, as respects the vaccine operations, the above remarks apply with perhaps greater force. To carry out vaccination properly, each Province has been divided into a certain number of circles, and each circle has been placed under the superintendence of a medical officer. But as there is no functionary whose special duty it is to exercise a general supervision over these medical officers, no uniform plan is pursued in carrying out the vaccine operations, and the statistical information which are published every year, can in consequence hardly admit being compared, with the view of drawing general conclusions as regards the entire country. Neither are the operations attended with uniform success every where. There is also some reason to doubt whether all the Vaccine Superintendents are thoroughly conversant with their duties. True it is that the Inspector General of Hospitals has to draw up something like a report on the subject as regards each Province, but his reviews are more clerical than scientific, and are hardly calculated to be of any material service to the cause of vaccination.

The hospitals and dispensaries are still worse cared for. It is of course the duty of the Deputy Inspectors General of Hospitals to pay periodical visits to them within their respective circles. But some how or other this duty is not properly discharged, as is amply shewn by the half-yearly reports on hospitals and dispensaries of each Local Government, which are published every year. Then again there are more circles of inspection than one under each Local Government, so that there exists the necessity of having one officer to inspect the whole. This necessity is partially recognized. In Oudh, the Sanitary Commissioner is at present also *ex-officio* Inspector of Jails and Dispensaries including Hospitals. In the Punjab and the North-Western Provinces, the Inspectors General of Prisons are also Inspectors General of Dispensaries. In Bengal there is no Inspector General of Dispensaries, and the duties of the office are at present discharged most indifferently by the head the Medical Department with the assistance of his Deputies.

The Government of India has wisely come to the determination not to encumber the Sanitary Commissioners with any extra duties as regards Bengal, the Punjab and the North-Western Provinces. The present arrangements as regards prisons and vaccine opera-

tions need not be disturbed. These have been judiciously placed under responsible officers, and if the attention of these officers be not diverted to other questions, their usefulness in their respective charges will soon increase considerably. The defects pointed out above in reference to these must however be remedied. The institutions for imparting medical education are not adequate to the demands of the different Provinces, but this question requires separate notice. The duties for which suitable provisions are wanting are the inspection of hospitals and dispensaries and the general medical supervision of the Provinces. These duties are very inadequately discharged under the present system, and require the exclusive attention of an officer of superior capacity and large experience. It is indeed a question whether the inspection of hospitals and dispensaries is not enough, if properly executed, to engage one man's whole attention. An intimate local knowledge of the province, extending over many years is indispensable. We are therefore of opinion that these duties might be provided by a corresponding reduction of the Deputy Inspectors General of Hospitals of the Indian Medical Department. We further think that these officers might be made *ex-officio* Under Secretaries of the Local Government. As such they will act as Medical Advisers of those Governments, as the latter are constantly in need of such assistance in the settlement of various questions. In the last named capacity, these officers can further watch over the food supplies of the country, and organize a system of registration of births, deaths and marriages. Above all they will have to prepare a general medical report of the Provinces, from the reports of the Sanitary Commisioners and the other officers in charge of other Departments. One great object which we have in view in the proposal we have made is that the Inspector General of Dispensaries should keep a careful watch over the various modes of treatment which might be adopted in the different civil hospitals, and to prepare a careful annual report of them, shewing the comparative efficacy of each mode.

ON THE COBRA POISON.

By Dr. Leopold Salzer.

When speaking in our last article about the dynamic curative power of drugs and the impossibility of singling out one of them as a specific for all the different forms attending any pathological state, we said: It matters little for our healing purpose, if these different species of the same pathological type be produced by as many originally different revulsive forces, or if in all varieties the same morbific force underlie the typical character of the disease, the varieties being merely produced by a corresponding variety of conditions; since *the conditions under which two forces meet, are as essential to a desired result as the nature of those two forces itself.*—The respective sameness of a drug and its antidote, or would-be antidote, is therefore no sufficient warranty for the sameness of their mutual action in two different cases, unless we had secured for them in both cases the same conditions, the same ground on which they are to meet each other.

Now that ground, the human organism—if we choose to restrict our investigation to one species of the animal kingdom—is certainly to a great extent uniform in its conformation; but what an immense difference between the uniformity of two grains of arsenic and two human beings! Leaving aside those peculiar anomalies, known by the name of idiosyncrasies, what amount of divergence between man and man, with regard to age, constitution, temper, disposition, etc., without their deviating therefore in any way from the generality!—Let us add to these natural variations, those springing from differences of climate, of occupations, of habits; from contracted vices, or even virtues, if the exercise of any one-sided, or falsely understood virtue may ever be called by that name. All these various causes tend to unhinge the harmony of the different organs; to throw too much work on the one while depriving the other of its due functional share, thereby deranging that equilibrium so necessary to the preservation of health, and laying the ground of what we usually call a morbid disposition. Should we then wonder at the same poison not producing the same train of symptoms in individuals so differently constituted? Is it not moreover natural, that that part of the organism which is most frail, should feel the first and the

severest shock from its contact with a destructive substance, while other parts primarily holding an essential relation to the drug's action, may still be strong enough to withstand the assailing destruction?—The perusal of any work on toxicology will soon impress us with the idea that the pharmacodynamic effects of drugs represent a reflex of natural diseases and resemble them in so far that both give rise to a more or less defined pathological state, attended with such other derangements as correspond to the individuality of the patient in one case, and to that of the poisoned victim, or the physiological prover, in the other. To individualize a given case of poisoning before proceeding to apply the dynamical antidote, will therefore be and always remain, an act of the utmost importance. He who seeks, in that largely propagated wholesale spirit, after *an* antidote against all cases of poisoning by any given substance, is not much better off than he who would try to trace an invariable line of treatment in all cases of Meningitis, be they of a simple inflammatory character or of a tubercular nature, or the man who would make himself and others believe, he possesses a remedy against *all* skin diseases, or against all spleen diseases, etc., etc.

Let us take as an example one of those vegetable poisons, the physiological action of which has been pretty clearly studied of late years—*Conium Maculatum.* Depression of the motor function, terminating in a gradual obliteration of all muscular movement derived from the cerebro-spinal motor tract, is the principal effect of hemlock. Such, says Dr. Harley, is its general and constant effect, and he very judiciously observes in this respect that the operation of hemlock in the same individual varies in degree, according to his motor activity. Thus, those leading a sedentary, inactive life are more readily affected by *Con.* than those of active habits. An active, restless child, he continues, will often take, with scarcely any appreciable effect, a dose of conium sufficient to paralyze an adult of indolent habits, and such as would reduce a powerful, muscular man to a tottering condition and force him to resume the recumbent position and retain it for a quarter of an hour or more. The particular parts acted upon by *Con.* are, besides the reflex functions of the cord, the motor oculi, the hypoglossal and the cerebrum itself. Here, as well as on the vascular fibre of the

brain it exerts a similar action of depression, causing on the one side paralysis and coma, and on the other a most intense passive stagnation and venous congestion of the blood about the head and brain.

Con. Mac. opens then in the poisoned victim three different gates to death; asphyxia is the name of one, paralysis of the nervous centres of the other, and apoplexy of the third. Toxicological records show this pretty clearly. Plato's memorable account of the death of Socrates represents the first mode of action of *Con. Mac.* "Shortly after having taken the poison his legs were beginning to grow heavy and he lay down; at the same time the man who had given him the poison, examined his feet and legs, touching them at intervals. At length he pressed violently upon his foot and asked if he felt it. To which Socrates replied that he did not. The man then pressed his legs, showing us (his disciples) that he was becoming cold and stiff. And Socrates feeling it himself, assured us, that when the effects had ascended to his heart, he should be gone. And now the middle of his body growing cold, he threw aside his clothes and spoke for the last time. 'Crito, we owe the sacrifice of a cock to Æsculapius; discharge this and neglect it not.'—'It shall be done, said Crito, have you anything else to say?'—He made no reply, but a moment after moved, and his eyes became fixed." Here death was caused by asphyxia from paralysis of the muscles of respiration. Suppose a medical man called to a man in the above condition; the best, to our knowledge, he could advise in order to palliate the threatening asphyxia, would be the administration of *Nux Vomica*, the same being, as regard its physiological action on the muscular system, the very antagonist of *Con.*, in causing muscular excitement. Supposing now, many patients of the above description had been actually saved by the timely use of *N. Vom.*, would it be reasonable to jump therefrom directly to the conclusion, that *N. Vom.* is the specific antidote of hemlock?—Halt, my dear Doctor, pray, not so hasty in your conclusion! There is another case before you related by Christison as met with by a French physician, Dr. Haaf. The subject of it, a soldier, had partaken, along with several comrades, of a soup containing hemlock leaves. In the course of an hour they became alarmed on being all taken ill with

giddiness and headache, and the Surgeon of the regiment was sent for. He found the soldier, who had fallen asleep in a state of insensibility, from which however he could be roused for a few moments. His countenance was bloated, the pulse only thirty, and the extremities cold. The insensibility rapidly increased until he died, three hours after eating the soup.—And in two other cases described by Dr. Watson in the "Philosophical Transactions" the subjects of which were two Dutch soldiers, who took broth made with hemlock leaves, giddiness, coma and convulsions were the principal symptoms. Would it be advisable to prescribe *N. Vom.* in these last mentioned cases?—From what we know about the physiological action of the last mentioned drug, it causes *active* congestion of (i. e., attraction of blood to) the head, and would consequently be quite out of place in the cases described above. Venesection would here undoubtely be more appropriate.

When the dose is not sufficient to prove fatal, says Orfila, there is sometimes paralysis, attended with slight convulsions. More commonly however there is frantic delirium.* Matthiol has related an instance of this last description, occurring in the case of a vine dresser and his wife, who mistook the roots for parsnip. Both of them became in the course of the night so delirious that they ran about the house, knocking themselves against every object which came in their way. Kircher, as quoted by Wibmer, tells a parallel story of two monks. Here neither *Nux. Vom.* nor venesection would be of any use; *Stramonium* or any of its analogues would rather be indicated.

Whoever earnestly studies the pharmacodynamic action of any drug will ultimately come to a similar conclusion with regard to its possible dynamical antidotes. We could easily cite many other examples, tending to the same result that we arrived at with respect to *Con. Mac.*, were it not that the subject would lead us far beyond the limits of the present paper, and that, on the other hand, we know, that the best way of convincing others is, to let them convince themselves. We for our part cannot help seeing in that antiquated idea of specific dynamical antidotes, the greatest drawback to a successful discovery of what is so eagerly sought. There are undoubtedly many specific antidotes to every

* Christison, Treatise on Poisons, page 857.

poisonous substance, but the proper place of their application has not been assigned yet, and this will to all probability last as long as we shall not have succeeded in freeing us from that erroneous conception, which has for thousands of years so much retarded the progress of our therapeutics.

Let those zealous searchers after a single specific antidote remember a piece of their daily practice. When called to prescribe for a mercurial disease, will it be in all and every case the same remedy they would prescribe with the purpose of antidoting the mercury? There is one suffering from salivation; the other from nightly bone pains; the third from exhausting night sweats; in the fourth it has been the liver where the metal has engraved its destructive action; a fifth is tormented by dysenteric stools; are we to treat these five patients in the same way, after one and the same plan?—And yet when it comes to antidote Cobra poison we hear of nothing less than a specific antidote, irrespective of its variety within the uniformity of its action.

There is another, and a very important circumstance, which forces upon us the necessity, not to rely upon any single agent during the course of a treatment in accidents of poisoning: it is the succession of toxicological symptoms, different from those preceding them, not only in degree, but in quality. For poisons are also in so far related, with respect to their deleterious tendency, to natural diseases, that they pass through different stages, during their fatal progress, not seldom closing the scene of life under different forms than those manifesting themselves at the beginning. Arsenic may induce at first inflammation of the alimentary canal, and afterwards palsy or epilepsy; Nux. Vom. may excite at first violent tetanus and afterwards inflammation of the stomach and bowels; and Corrosive Sublimate after exciting in the first instance inflammation may prove fatal by inducing excessive ptyalism.

It is true, violent poisons, liable to carry off the victim in a proportionally short time, observe, as a rule, more uniformity in their action, generating an uninterrupted increase of symptoms from beginning to end; but this class of poisons, in order to be as prompt as uniform in their fatal action must be taken in proportionally large doses; otherwise the above described succession of symptoms may be taken as the rule. Is it then not a folly

to suggest such or such an agent as the dynamical antidote to a given poison, since that given poison will never enable the professional toxicologist to foretell the whole course of its dynamical action?

In fact, when we examine the dynamic antidotes in general, we find that they are few, very few in number indeed. All toxicologists tell us pretty nigh the same; their statements in this respect may be resumed in the following: dynamical antidotes being supposed to control the deleterious action of the poison, by exciting in the system an action contrary to that established by the same; it will be found exceedingly difficult to say, what the essence of a contrary is, and still more, how that counteraction is to be brought about. Discouraging as such a statement may be for itself, it becomes the more so, when we remember that the same reasoning is, with not the less strength, applicable to natural diseases. Nevertheless we are bound to take facts as they are, and we shall not be the better off, when we try to hide them from ourselves.

We think not to be in error, nor in contradiction with those truths brought to light by physiological experiments, in pointing to another difficulty standing in the way of our attempts dynamically to antidote or to cure with the aid of the *contraria contrariis* principle. The difficulty consists in this, that those drugs so applied, be it for an antidotic or curative purpose, are most likely to develope in the patient all their pharmacodynamic actions, with the exception of that their administration was intended for. Let us return to our above example of poisoning with *Con. Mac.—Nux. Vom.*, we said, would be the best known agent to antidote dynamically the threatening asphyxia caused by the poisonous hemlock. But just as well as Con. M. according to Dr. Harley's experiment, act the more promptly and vigorously the more the motor functions of the individual are already (constitutionally or accidentally) depressed, and therefore, as it were predisposed to the poison's depressing action; just so will *Nux. Vom.*, the dynamic action of which consists in an unnatural excitement of the muscular apparatus, manifest its promptest action in individuals of a (constitutional or accidental) muscular excitement; and it would not be going too far to say on those muscles of the same individual, happening to be predominantly

excited. This may appear a vague conjecture to those, who have not yet had the opportunity of testing, with the same accuracy and minuteness the physiological action of *Nux. Vom.* as it has been done with respect to *Con.* by Dr. Harley. All we can say in reply to that is, prove it, prove it on yourself and on others in good health and you will find that doubted conjecture confirmed.

Let us now examine the chances of a man, poisoned by hemlock and to be saved by Nux Vom.—Unable to assume an erect position, he is forced to lie on his bed; his legs have become paralyzed; paralysis advances fatally upwards, he can hardly breathe; his respiratory muscles are stricken with palsy. We administer Nux Vom. The antidote begins to act. On what part of the body? On those palsied respiratory muscles? Not at all! Are they not the least predisposed to the effects of the antidote? There is all likelihood that it will first of all produce all the mischief it is capable of, in those quarters its predecessor, Hemlock, has not reached. To that passive congestion in the veins of the head, caused, although supposedly in a slight degree in the victim, by the foregoing poison, it will add its genuine share of active cerebral congestion; then it might produce a little lock-jaw; some tetanic spasms of the larynx and so on. *Then*, provided death has not yet closed the scene, Nux Vom. may descend to free the patient from his threatening asphynixa.

We could easily apply an analogous reasoning should Con. be prescribed, with the purpose of antidoting Nux Vom., or with the therapeutical view, to relieve a patient of his cough caused by a morbid excitement of the respiratory muscles. Feeling however that we have been already led too far away from our principal subject, we shall devote our next article on "cobra poison," to such researches, as directly refer to the same.

(To be continued)

CLINICAL RECORD.

—oo—

A case of Remittent Fever with Jaundice and a peculiar symptom, viz., severe vomiting after each draught of cold water.

UNDER CARE OF M. L. SIRCAR.

ON the 11th Dec. 1868, I was first called to see Baboo P. K. D, for a peculiar and a most distressing symptom, namely severe vomiting after drinking the smallest quantity of cold water. On inquiry I found that the gentleman was laid up with fever for the last 22 days. The fever was at first of the intermittent character, but had latterly become remittent, and was day by day becoming more and more violent. I found him deeply jaundiced. There was some tenderness over the hepatic region. The abdomen was full and tympanitic; there was considerable griping always present, and very severe griping and tenesmus after stool for which he has to strain much. Passes fœtid flatulence with relief. Skin hot, pulse 120. For the last 3 or 4 days he was being troubled with the peculiar symptom mentioned above and which not yielding to any treatment I was sent for. The patient described to me that on account of this distressing symptom he had a horror for water although he had a burning thirst. He could take liquid medicines, even the most disgusting mixtures, without feeling the slightest nausea or tendency to vomiting, he could take milk, and any thing else that is liquid, except *cold* water. Knowing that we prescribe medicines in cold water he requested me not to do so in his case. I however assured him, he will not vomit again. I gave him *Eupatorium Perfoliatum* 3, ¼ drop in a little cold water, to be taken every hour for two or three doses.

12th. Called at about 11 a. m. and had the satisfaction of hearing that the patient could retain water after taking 3 doses of the medicine. In fact he described to me that he felt an attraction for water after the 3rd dose, immediately after which he passed a stool consisting of fœcal matter and a large quantity of bile. The stool was hot and much flatus escaped with it.

Temperature of the skin almost normal; pulse between 104 and 100. Has griping still of the bowels; has had no stool to-day. Tongue still as bad as before, being thickly coated white and having the impressions of the teeth on the margins; the conical papillæ much inflamed. Eyes jaundiced, perhaps slightly less than yesterday. Appetite has improved somewhat after the stool last night.

The same medicine was ordered to be continued.

13th. No fever; no vomiting; says has a very sharp appetite; the tongue however is not yet quite clean; griping less but still continues; has had no stool. Was ordered chappatee (unleavened hand-made bread) and *gandal* soup. To have *Eup.* one dose.

4 p. m.; could not take chappatee; says he does not seem to have much real appetite. No fever; jaundice somewhat less. Tongue still continues white. *Nux Vom.* 6.

14th. Ravenous appetite, must have rice. Had one good stool, consistent and containing much bile; griping still continues. Rice was ordered. To continue *Nux Vom.*

In a few days more he was perfectly well. Nux Vomica completed the cure.

Remarks.

In this case the "regular" practitioner with his powerful sedatives and anodynes and other nervines was left completely in the lurch. At the same time, therefore, that it proved the utter worthlessness of orthodox medicine, it thoroughly established the immense superiority of treatment by the law of similars. The patient, a highly intelligent gentleman, was astonished at the action of our medicines. He is so convinced of the vast difference between the two systems that he now always honors me with charge of cases that occur in his family.

I have since had an opportunity of testing the efficacy of *Eupatorium* in reference to the peculiar symptom noticed above. This was in a case of cholera, where on the subsidence of the more urgent symptoms, this symptom developed itself and readily yielded to *Eup.* 6.

A case of Concussion of the Brain.

By Unnoda Churn Kastagiri.

On the 2nd Instant a Hindoo weaver, named Ram Chunder, aged 25 years, was brought to the charity Hospital at 1 p. m, in an insensible state. His friends stated that he was severely beaten by Police constables with blows from fists, and kicks, pushed backwards and forwards, thrown on the ground, &c., in order to get out some confession from him; that the patient is insensible from 9 or 10 o'clock last night.

On admission patient was insensible and motionless, pinching or otherwise inflicting pain gave evidence of the patient's feeling it. Voluntary muscles evidently not paralysed. Respiration slow and

sighing, pulse small and frequent, and weak at the wrist. Pupils contracted; eyes a little red.

Patient's head and body covered with reddish marks and swellings; both the temples red and swollen. No cut any where; circular ecchymosed marks round the flexure of both elbows, probably of ropes, by which he was tied; no fracture or dislocation any where.

Head was ordered to be shaved. Cold water applied once, afterwards liquor lyttæ applied on the nape of the neck and back part of the head. Body to be covered with a blanket.

5 p. m. Depression of the system continues, bowels confined. Ordered an enema of castor oil and turpentine.

3rd. Feb.—7½ a m. Patient had 3 stools, also passed a large quantity (about ½ a pound) coagulated venous blood; this was probably owing to a blow, or blows inflicted on the abdomen, which might have caused rupture of a small blood vessel of the intestinal mucous membrane.

Patient starving since the night of the 1st instant; water put into the mouth is swallowed, showing that the patient is not quite insensible. Reaction is setting in, pulse a little stronger but still frequent; eyes red, patient turns on the bed, pulls the blanket on his body with his hands.

Apply cold water on the head; dress the blister with simple ointment. 5 p. m.—Patient has opened his eyes, speaks a little; asks for water, pulse strong, pupils natural, body warm. Redness on the various parts of the body fading away, swelling less.

4th. Feb. Improving, asks for some water. Give milk and sago. Continue cold to the head, dress the blister.

5 p. m. Sits up on his bed, no sign of excessive reaction or returning depression. Continue milk and sago diet.

6th. Feb.—Pretty well, can walk a little. Rice and milk diet.

7th Feb.—Discharged from the Hospital.

Remarks.

In this case the defence was made on the ground, that the patient was shamming throughout, and that he was not beaten, or otherwise ill-used. This gave rise to the following medico-legal questions:—

1st. Could a man suffering from concussion, come to his senses on the 3rd or 4th day? 2nd. Could blows or falls on the head or feet, which have no mark of contusion externally on the 4th or 5th day, be the cause of concussion of the brain? 3rd. Can a blow on the abdomen from a blunt body, which has caused bleeding from the rectum, be so, as to leave no mark of contusion externally. 4th. Can

a man suffering with insensibility from concussion, be sensible for a short time, and be again insensible?

To the 1st, 2nd and 3rd questions my answer was in the affirmative.

To the 4th, I qualified my answer in the negative by the statement that such cases of concussion are of the 3rd degree, and dangerous in their results, being attended with lesion of the brain and merging into compression, from extravasation of blood into the brain afterwards. Or the symptoms might be accounted for in this way: the 1st insensibility might have been feigned to frighten the assailants, then the man shows signs as if of returning sense, when he may be again attacked, and beaten, or thrown on the head, or feet, in a way to cause real concussion of the brain.

Gleanings from Contemporary Literature.

On the Production of Reflex Spasms and Paralysis in Birds, by the Application of Cold to Definite Regions of the Skin. By S. Weir Mitchell, M. D., Member of the National Academy of Sciences.*

On the 11th of May, 1866, Dr. B. W. Richardson, of London, who it seems had been occupied with precisely the same line of investigation as myself, published the first of a series of lectures, in which he repeated and thoroughly confirmed the results I had obtained, while, at the same time, he added very valuable details, and a clear and careful examination of the influence of extreme cold upon nerve trunks—a subject on which I had not touched. While differing from this gentleman as to some of the conclusions at which he arrives, especially concerning the function of the cerebellum, * I find between his results and my own scarcely any discrepancies which may

* The chief point on which I differ from my friend, Dr. Richardson, is in regard to the inferences he makes from his experiments and my own, as to the physiological balance of control between the cerebellum and the anterior ganglia of the brain. Accepting Magendie's views that the corpus striatum is endowed with a constant backward-propelling energy, while in the cerebellum resides an opponent influence, he states that freezing the cerebellum gives over the pigeon to the governance of the corpus striatum, and so occasions retrogression; the reverse occurrence following the abeyance of function in the anterior centre. I have always believed that these various phenomena of retrogression—lateral motion, *mouvement de manège*, &c., were due to excitation of parts, and not to annihilation of function; and this view is sustained by the fact that mere punctures, which do not destroy the centres, are competent to occasion the enforced motions. In freezing, Dr. R. observed that the first chilling (stage of reaction) of the cerebellum often gave rise to forward motions. The reactions,

not be justly considered as due to the fact that we employed different agents to bring about the desired end. As to these differences I shall presently have to say a few words before attacking the subject of this present essay; but I should be ungracious were I not to seize the first occasion to thank Dr. Richardson for the courtesy with which he has seen fit to speak of my experiments, and for the generous care with which he has brought my results before an English audience. I may add, that without the aid of his own brilliant and useful method of causing local anæsthesia, I should have been unable to pursue this line of study at all.

Dr. Richardson describes local anæsthesia where ether is used as presenting the following phenomena:—

First stage: Temperature 96° F.; sensibility perfect.

Second stage: Preaction; removal of nerve-force; increase of temperature and of vascularity; exalted sensibility.

Third stage: Inertia; no nerve-force; temperature 16° F.; perfect insensibility; solidification of fluids of tissues; no blood.

Fourth stage: Reaction; return of vascularity of paralyzed vessels; increased vascularity and temperature; exalted sensibility; re-solution of fluids of tissues; innervation continued.

Fifth stage: Return to natural state.

All of these stages probably exist in every case of freezing of the tissues in warm-blooded animals; but when rhigolene is employed, the stage of preaction is so brief as almost to defy observation, owing to the great rapidity with which that fluid congeals the part. It differs also from ether in that it freezes less deeply. The former liquid chills so large and deep a portion of tissue, that when freezing begins, there is little obstacle to the

after deeper freezing, to backward activity. Now Flourens has shown that irritation of the superficial layer of the cerebellum causes motion forward, and that deeper irritation produces retrogression. Is it not probable that the first slight chilling only reached the outer layers, and so gave rise to the forward motion, whilst the reaction after deep freezing, affecting a large and less superficial mass of the organ, caused retrogression.

In another place Dr. R. seems to consider that retrogression, as I have mentioned above, is due to temporary suspension of the cerebellar function. I myself have not seen this occurrence while the part was really frozen; indeed, so sudden is the reaction, that you can scarcely be sure, a moment after releasing the bird, that reaction has not begun. On the other hand, it was clear to me that the time of greatest retrogressive movement was coincident with the period of profoundest reaction; so that, whatever view we take, must accept a condition of cerebellar irritation as a part of the explanation of the backward tendencies. In corroboration of these very hastily stated views, I may add, that oblation of the cerebellum does not produce those backward movement which can be obtained by irritation of limited regions of this ganglion; and that the experiments of this present paper seem also to favor the view that, in enforced retrogression, forward motion or lateral movement, the principal element of their production is an irritation which affects some mass or masses of ganglionic matter so as to cause convulsive efforts which are vertiginous in character.

process; whilst, with rhigolene, the suddenly congealed layer of skin acts at once as a bad conductor, and interferes with the deeper action which we desire to obtain during the latter stages of the process. Dr. Richardson noticed certain phenomena during the stage of preaction, whilst chilling the spine or brain, which I myself did not observe—possibly because of the speed with which rhigolene acts.

After reading his very interesting lectures, I repeated my experiments, with the view of obtaining the very symptom of this preactive stage to which he refers; and in this series of observations I was led to notice facts which in themselves are valuable, and which cast a curious light upon some of the most obscure pathological and therapeutical questions of the present day.

If, as I first stated in my former paper, we throw a spray of ether or rhigolene anywhere upon the cervical spine from the skull to the fourteenth vertebra, the bird, on being released, runs forward as if confused and alarmed; then assumes his natural motions; and, after a varying interval, begins to have spells of backward movement, and even of somersaults, alternating with fits of stupor.

Below the fourteenth vertebra, this treatment gives rise, in the same way and time, to attacks of uncertainty of movement, loss of equilibrium, singular stamping motions of the feet, and partial palsy of the legs. All of these symptoms appear to me to belong to the stage of reaction, in which there is excess of blood in the spine, and consequent irritation of this organ. I was, indeed, fortunate enough to get like results by placing on the bare cord a drop of tincture of capsicum, but the congestion and motor phenomena which resulted did not appear for much longer period of time than under the former process. With these facts as a basis, I began to study the symptoms of Richardson's stage of preaction. In it, as he states when speaking of freezing the cerebrum, the pigeon becomes excited, and attempts to fly forwards or backwards, the stage of reaction being marked by like phenomena. The point which chiefly attracted my notice in Dr. Richardson's statement was this production of constrained movements so soon after the jet struck the skin. I felt doubtful, on reflection, as to the possibility of the centres being thus early affected by any direct influence of the cold. With this uncertainty in my mind, I sought a decision by the aid of the following experiments, and these led me out upon a more interesting track than that upon which I had at first entered.

Expt. 1.—I threw a jet of rhigolene, for a few seconds, on the cervical region of a well-grown pigeon, long enough to freeze the skin very slightly. The sole effect, at first, was to cause deep and frequent respiration. On releasing the bird it ran about uneasily, and in twenty-five seconds had backward movement. Of course, this was due to reaction only, but I was surprised that the spine should have been chilled enough to occasion a result so well marked.

Expt. 2.—I chilled the skin with rhigolene in the same place without freezing, again producing laboured breathing. Within half a minute the bird began to move backwards. As I now felt sure that the spinal centres could not have

been reached by the cold, I secured them from all possible chance of this in the following way:—

Expt. 3.—A fresh pigeon was held by an assistant, Dr. Wilson, while I picked up and held between my thumb and finger a portion of the loose cervical skin. The part which projected above my hold was thus removed at least three-quarters of an inch from the spine, while I lightly froze it with the rhigolene jet. Before releasing the bird, I carefully held the skin until it regained its natural warmth, when I set the pigeon at liberty. To my surprise, it showed, in two or three minutes, the utmost confusion of movement, with finally very perfect backward motions.

In another experiment, like the last in all other respects, I warmed the frozen skin before I let the bird go, but the result was nevertheless identical. I now perceived that the phenomena which could be caused by directly chilling the spine, were to be obtained in a less striking manner, but still very remarkably, by merely chilling or freezing the skin of the back of the neck, and that I had before me one of the most beautiful illustrations of reflex pathological movements which had as yet been discovered.

The next experiments it is needless to relate in full. They were directed towards ascertaining the amount of cold which it was requisite to produce in order to occasion the retrograde actions. I found that while for their best display it was well to freeze the skin, in many cases it was only necessary to chill the surface very lightly to get the effect in a form quite sufficiently clear. The extent to which it is desirable to chill or freeze seemed to be determined solely by the individuality of the pigeon itself, since in some a single flash, so to speak, of the rhigolene would answer, while in others I obtained the retrogressive actions only by intensely freezing the skin, or even, in rare cases, not at all. It was also well worthy of note that in pigeons which did not at first yield the usual movements, several repetitions would occasion them, and that afterwards they became easy of production. Moreover, as a rule, each successive exhibition appeared to make the pigeon more readily liable to the motions referred to, so that in some cases, which at first required firm freezing to cause the spasms, even the slightest chilling would suffice.

When fully satisfied that the curious enforced movements above described were due merely to reflex effects, and not to any direct chilling of the spine, I proceeded with care to determine the relation between the region of skin frozen or cooled and the form of the resultant phenomena.

Head.—When the skin of the head over the cerebrum is seized between the fingers, and frozen and thawed before releasing it, there are sometimes seen, at the start, irregular and confused movements. These, as a rule, result in stupor so deep that the bird, if carefully handled, may be laid on its back and left without stirring for many minutes. In general, it starts off after the freezing, as though quite well, and in a few minutes falls forward in the stupor described, without other motor symptoms of any remarkable character.

Back and sides of Neck.—I have already pointed out that chilling freezing the skin of the posterior neck occasions retrogressive acts.

In no case did it give rise to the violent somersaults * which follow deep freezing. When the sides of the neck are chilled, the bird, as usual in all cases, exhibits some disorder of the respiratory movements. When released, it is apt to move about uneasily for a time, with much confusion in its motions. In other instances no such symptoms appear, but in all soon or late, the pigeon is attacked at intervals with fits of enforced lateral walking, occasionally ending in a fall upon the side towards which it moves. Nothing more strange or abrupt than these paroxysms can be conceived of. The bird walks about, plumes his feathers, or eats, and on a sudden, under overwhelming sway of these morbid impulses, it walks staggering to left or right, as the case may be. Stupor was far more rare than in the freezing of other regions.

Anterior Neck, and Skin over the Crop.—Freezing of the former region in the middle line occasioned retrograde motions. The latter proved to be excessively sensitive, and, owing to the stretching of the thin tissues over the full crop, was at times easily frozen by a single breath of rhigolene-vapour. Freezing the middle line of the crop means, of course, portions of skin on both sides of this line. It gave rise, as in other cases, either to no phenomena for a time, or else to sudden forward motions, and to great confusions in the action of both the legs and the wings. Always, however, the final result was sudden and violent retrogession, and even in rare instances, backward somersaults. I presume that as freezing in the middle line means, practically, freezing both sides at once, it is fair to consider that we have here a balancing of the two lateral tendencies; but also there must be the third element of backward tendency and this must be due to the effect on parts near to the middle line of the body, because the latter movement—that is to say, retrogression—does not follow, as a rule, the chilling of one side of the crop. Lateral freezing of this part occasions, usually, the most remarkable lateral motion towards the unfrozen sides. In rare instances, especially when I froze very far from the central line, and low down on the crop, I obtained with motion to the opposite side a marked weakness and dragging of both the wing and the leg on the frozen side.

Breast and Belly.—Freezing of the breast occasioned some irregular, confused motions, and gave rise, a little later, to great general feebleness, staggering forward, and spells of slight stupor. Freezing of the legs caused a singular dancing movement alone. When the skin of the belly was chilled, the phenomena of partial paralysis and forward falling were most conspicuous.

Spine below Cervical Region.—Here the phenomena were just such as follow deep freezing of the dorsal or lumbar spine; that is to say, at first little or no result, but finally singular feebleness of movement, with irregular locomotion, stamping of the feet, and forward falls but no retrogression in any case.

The general law observed in these various cases of freezing of different

* Dr. Richardson did not succeed in causing this effect.

parts of the surface is capable of very simple statement. If we make allowance for slight discrepancies, and consider the difficulty of exactly localizing the cold, we shall observe that *in pigeons the chilling of any region of skin occasions just such symptoms as follow the application of deep cold to the spinal region which lies below it.* To this there is the exception of the lateral motions, which I have never caused by chilling the spine, but which perhaps I might produce, could we limit the cold to the sides of the bare spine.

In observing these wonderful instances of reflex spasms, and in noticing the alternate or consequent stupors, I have been led to suspect that the whole group of symptoms might be in their nature epileptiform. In fact, they strikingly recalled to me cases of epilepsy in which it was always possible, during a series of fits, to determine instantly a fresh attack by pinching certain regions of the skin, or, as Brown-Sequard states, by galvanizing portions of the integument. Upon reflection, I remembered that in quadrupeds the best type of epilepsy we can artificially induce is to be occasioned by cutting off the supply of blood to the brain. By this means I hope in the pigeon to produce, for study, the form of epilepsy to which the bird is liable, and so to be able to compare it with the most violent of the convulsive motions caused by cold.

8.—I tied successively the vessels of the neck in a pigeon until I brought on sudden and violent convulsions. These consisted first in wild, irregular movements, and finally in backward somersaults, which ceased when I relaxed the ligatures, and began again when I tightened them anew.

By repeated experiments of this nature I satisfied myself that the tendency of the pigeon during epilepsy from anæmia is towards violent backward motion, so that, as far as this may be looked upon as evidence, there is at once made out a conspicuous resemblance between the spasms from cold and those just described.

As I have utterly failed to evolve like phenomena in quadrupeds, I am not prepared to dwell upon some of the tempting analogies between the facts above described and those with which human pathology furnishes us. The most remarkable would be the production of paraplegia or of tetanus in man by the application of cold to the surface. Both here and in the bird it is probable that a congestion of the spinal centres has to do with the result, but in the bird there are always, with the feebleness, larger evidences of irritation of these ganglia than in the cases of human paraplegia from chill of surface. I have great hopes that further research may determine the possibility of producing in quadrupeds like phenomena, and until then it were perhaps wiser to refrain from further speculation.

There yet remains one very puzzling question. I have been totally unable to occasion any of the phenomena which I have dwelt upon by chilling or freezing the skin with ether. Why this should be, I cannot say. Both Dr. Richardson and myself have obtained perfectly satisfactory backward motions by chilling the spine itself with this agent, but by no variation of treatment has been made to occasion like effects when used on

the skin alone. I trust that others may be more fortunate. I should add that blistering the skin, the use of rhigolene kept from evaporating by oiled silk placed over it, as well as numerous other methods of irritation, have one and all failed to reproduce the results which are given by the rhigolene jet. I do not think that any of the ethers to be obtained here have so low a boiling point as those used by Dr. Richardson, and since it is the peculiarity of rhigolene to freeze or chill very abruptly, owing to its low boiling point, it may happen that transatlantic observers will be able to repeat my experiments with ethers, which in this respect approach it in their mode of action. I am not aware that rhigolene has been used abroad, and on this very account I have been careful to exibit my experiments to numerous physicians, among whom were Mr. Spencer Wells and Drs. Nicolayson, Loring, Keen, Mears, and Parry. I was ably assisted throughout these researches by Dr. John T. Wilson, of Maryland.—*American Journal of the Medical Sciences*, January 1868.

Correspondence.

—oooo—

HOMŒOPATHY IN GOVERNMENT HOUSE.

TO THE EDITOR OF THE CALCUTTA JOURNAL OF MEDICINE.

SIR,—There is in the February number of the *Ind. Med. Gazette* a correspondence, headed "the Viceroy's Private Surgeon," and written, according to the editor's statement, by a "gifted and valued correspondent," in which much resentment is shewn with respect to the rumor, that a Homœopath has, or may have, been appointed to the Viceroy's medical staff.

The gifted and valued correspondent, "spectator" by name, is candid enough to declare that such an appointment "if true, must have proved a somewhat nauseating little pill to the medical Service of India."

I have always considered Allopaths little sensible of the nauseousness of their pills, or that they would at least be consistent enough to swallow them under imperative circumstances without the slightest grimace; to my astonishment I learn now that they do not desire for themselves what they daily advise to their poor and unfortunate fellow-creatures.

This is however not all that one has to learn from the valued correspondence of our gifted "spectator." Whoever falls under allopathic treatment, has to expect a massiveness of dose; his dose is massive indeed. He goes on "Should Homœopathy ever gain official entrance to government house, the claims and dignity of legitimate Medicine must receive a rude shock. Oil, and water, even in India (what an ingenious parenthesis!) do not mix well." The mere service bearing of the question interests us as a body (aye, there is the rub!) It is clearly our duty to resent any thing that we believe to be

calculated (?) to lower the medical profession in the eyes of the world. We, the benighted partizans of a system anterior to Hahnemann's infinitesimal wisdom, cannot forget that we are sworn to evince a becoming and life-long reverence for the reputation of the college of Physicians of England and that we solemnly pledged ourselves in the counsel chamber of the honorable old company to oppose all false systems of medicine and to prove ourselves the enemies of any unworthy partnership between what we judge to be truth and error."—A fearful oath indeed!

"Between what we judge to be truth and error"! There is then still a hope for Homœopathy from the moment *we* judge it to be truth. It is worth notice, that the animosity against the new medical system does not repose upon the oath but upon the judgement. If our "spectator" would only remember rightly, he would find that every medical man, on entering into his professional career, has likewise to undergo an obligation, not less solemn than the above cited, to the effect that, he will at all times and under every circumstance do his best for his patient. Let it be said to "spectator" and his colleagues, that it is in the name of the last mentioned solemn obligation, that thousands of physicians have discarded Allopathy and adopted Homœopathy.

To return to the delicate point of the question. Earl Mayo has, as it seems, not undergone any of the above mentioned obligations and has, to all appearance, the capacity of a sound judgement too. Little as this judgment may be worth in the eyes of "spectator" with respect to medical systems and medical practice in general, it must be admitted to be of not the less value and importance to him who formed it for his own individual guide. But our "gifted" correspondent takes the dignity of his professional brethren to heart! He sees in the Viceroy's option of a private medical adviser an act calculated to lower the medical profession!—In so far as this goes, it might perhaps be of some consolation to the *Ind. Medical Gazette's* correspondent to take to heart what Schiller made say one of his tragical queens: "One can treat us low, but lower us—never". Men can never be lowered if they do not lower themselves, and there can be no more disgrace to a professional man or to a body of professional men, than to force upon any one, be he a king or a beggar, any medical advice against his own sound will and judgement. Truth is a great boon to humanity, but liberty, liberty of decision and action, is by far a greater boon. Let all truth die out of the world—liberty of thinking will regenerate it; let liberty die out and you may be sure, truth will soon follow her into the grave.

Proceedings like those of the valued and gifted medical correspondent look like going a-begging (although in a high and therefore more impertinent tone) for admission to practice, and a man who does it, brings shame upon that profession the dignity of which he fears to see lowered.

Let Homœopathy as well as Allopathy stand or fall on their own respective merits or demerits. If the former be a gross error, it will, it must die out without any sworn animosity; if it be true, it will survive its older rival sister, Allopathy, though all the kings and emperors in the world decree against it; for, truth is mightier than sceptres and crowns.

Those gentleman of the medical profession who hate Homœopathy because they judge it as erroneous, and who judge it as such because they hate it, had better study it before proclaiming their judgment. They would soon discover that most of their reliable remedies are homœopathic, that is to say, such as would produce a similar pathological state when taken in a healthy condition. I have not the slightest wish to take "spectator" by the hand and to point out to him all those cases and remedies with regard to which Allopaths prescribe homœopathically, with more or less success according to the dose prescribed in lesser or greater quantities—the list would be too long for this letter. I shall therefore on this occasion restrict myself to only two cases, cases as they are exhibited in the very same number of the *Ind. Medical Gazette* under the heading "*Progress* of the Medical and Collateral Sciences." The first refers to "Bromine as a prophylactic against Diphtheria,"—"M. Ozanon," we are told as a *novelty in medical science*, "proposes the employment of Bromine for this purpose. He gives it in 10 or 12 drops in saccharine solution—mj of Bromine to grammes 25 of solution.—(sic,) He states that he has tried this remedy in many cases with considerable success; he also recommends the inhalation of Bromine vapor in cases of croup." —Bromine in cases of croup as a novelty of medical science? Take any homœopathic book in hand, if even ten years old, and you will find that marvellous novelty recommended, recommended on homœopathic grounds; note at the same time, that the dose recommended by Mr. Ozanon is well nigh an infinitesimal one, the inhalation of the vapor!—Bromine produces in healthy persons, inflammation of the mucous membranes of the fauces, covered with coagulable lymph. Guided by this fact, Homœopaths used it in croup, and as it is seen with good results, since it has been found worthy to be recommended to the *legitimate* profession. But that legitimate profession, how has it come to hit upon Bromine as a croup remedy? Let "spectator" who takes the dignity of his professional brethren so deeply to heart, step forward and explain by what legitimate title they took possession of that therapeutic agent! Starting from an allopathic point of view, I should think a drug which produces inflammation and exudation of coagulable lymph should be the least entitled to consideration in a disease like croup. Or was it accident which led Mr. Ozanon to his happy discovery?—Granted; what do you conclude, gentlemen of the Old School of Medicine, what do you conclude from that *scientific* accident?—"That Homœopathy is a logical nonsense and a practical humbug"—there is the answer of a body of professional men who have been trained in exact thinking from the time of their youth!

In the same number of the *Ind. Med. Gazette* and under the same heading there is another little article running as follows:

"*Ergotine after amputation.*—If we are to believe some recent statements of Mr. Bonjeau (and we shall soon see we may firmly believe it) the mortality after amputation is diminished from 3 to 1 by the administration of a draught containing ergotine. The plan has been tried at the Hospital Saint Andre at Bordeaux with the results above given."

"If we are to believe!—and we shall soon see we may firmly believe"!—Does the Editor of the *Ind. Med. Gazette.* know that to believe such statements as exhibited in the quoted article, is to embrace at once the most dangerous medical theory in the world, the theory of Homœopathy? Every novice in medical science knows the remarkable history of ergot and the many epidemics it brought upon mankind at different periods. The first record refers to the year 1059, "This was a pestilent year," writes Sigebert, "especially in the western parts of Zorraine, where many persons became putrid in consequence of their inward parts being consumed by St. Antony's fire, their limbs became rotten, black as coal. They either perished miserably, or deprived of their putrid hands and feet, were reserved for a more miserable life." Since then repeated epidemics have broken out at different times in different parts of Europe and were described by French authors under the name of *Gangrenous Ergotism* (See Christison's treatise on poisons.) And this is the drug, stated to have diminished the mortality after amputation? And men who believe this, go on, on the other page of the same paper to cry down the *infinitesimal* wisdom of Hahnemann as the generator of a system of folly! I must again refer our wise colleagues to the works on Homœopathy, they can find there, their "novelties in medical science" of an age as old as Homœopathy.

Let me close here, Mr. Editor, for the time has evidently not come yet for the medical profession at large to think independently, and I am not disposed to lose more words on slaves—be they even scientific slaves—of theories and dogmas.

I have the honor to be
Sir,
Your's &c.,
An Impartial Spectator.



THE

CALCUTTA JOURNAL

OF

MEDICINE.

VOL. II.] **March, 1869.** [NO. 3.

A SKETCH OF THE TREATMENT OF CHOLERA.

We propose to give, in brief, the treatment of the prevailing diseases of this country, such as cholera, malarious fevers, dysentery, diarrhœa, &c., chiefly based upon our own experience. We begin with cholera as being the most deadly, and in the face of which orthodox therapeutics stands aghast in utter helplessness and hopelessness. It is singular that the disease, which, in its nature, is of the most appalling acuteness and gravity, which is pregnant with the most frightful mortality, and which is the most universal and the most destructive plague of the present day, should be the apostle as it were of the most glorious and the most beneficent reform in medicine. Yet such is the fact.

We may with advantage consider the disease as consisting of five stages:—

I.—The First is the stage of incubation, of invasion, or of premonitory symptoms.

II.—The Second is the stage of full development.

III.—The Third is the stage of collapse.

IV.—The Fourth is the stage of reaction.

V.—The Fifth is the stage of sequelæ.

In the most virulent forms, the first stage may merge so rapidly into the second as not to be distinguishable. In the majority of cases, however, it is present, and should be availed of to cut short the disease. In the milder varieties the fifth stage may be wanting, the fourth or the stage of reaction being followed by a return to health. The most dangerous are the third and the fifth stages, or the stages of collapse and of sequelæ. Death takes place in either of these stages.

The symptoms of the disease at its full development are purging and vomiting of watery, or rice-water stuff; cramps; skin cold, clammy with perspiration; sunken eyes; husky voice; feeble or no pulse; restlessness; anguish; insatiable thirst. The most constant of these symptoms are the purging and vomiting. Other symptoms may be absent, and yet the disease be cholera. But it is extremely rarely that the purging and vomiting of cholera are absent. In cases where they are absent, the death has been so rapid that we may say that there had been no time for the evacuations to take place from the bowels or the stomach; or the paralysis of their muscular coats has been so profound as altogether to disable them from discharging their contents. The starting point of the disease we therefore believe to be in the alimentary canal, or rather in the portion of the nervous system immediately concerned in their regulation and government, the ganglionic system.

The varieties of the disease are constituted by the preponderance of some particular symptom. Thus with purging as a predominant symptom, we have *cholera diarrhœaica;* with vomiting, *cholera gastrica;* with both purging and vomiting, *cholera gastro-enterica;* with cramps, *cholera spasmodica.* Authors also make other varieties, as—*Cholera sicca,* when purging and vomiting are altogether absent, but there is a sudden prostration of the vital energies, indicated by coldness and lividity of the whole surface, failure of the pulse, and huskiness of voice, added to which there is suppression of the urine. *Cholera acuta,* in which the patient feels as if he were stunned, or has a sensation of weight in the head, or vertigo, oppression of the chest; numbness of the arms and legs. Afterwards there are rumblings in the intestines; heat of the body, pulse rapid and feeble; nausea, retching, or vomiting; bilious or watery diarrhœa; suppression of urine, &c. *Cholera inflammatoria,* in which in addition to the fulness and

frequency of the pulse, there is great heat of the body, redness of the eyes, &c. The last two varieties do not seem to be of much importance.

The indispensable requisites in the treatment of cholera, as indeed of every disease, are a knowledge of its etiology, or of its causes, predisposing and exciting; a knowledge of its pathology, or a right interpretation of its phenomena, in other words, of symptoms objective and subjective; a knowledge of its natural history, or of its course when left to itself; and finally a knowledge of the properties of drugs or of their physiological actions. When physicians will set about treating cholera charged with all this knowledge, we shall cease to hear of the treatment of cholera by astringents alone, by stimulants alone, by opium alone, by calomel alone, by camphor alone, and so on. We believe cholera is but the generic name for a variety of diseases. Its causes are not one, but manifold. Each case should be studied by itself. Each case will be found to have an individuality of its own resulting not only from the peculiarities of the individual, but likewise from the nature of the cause or causes which have given it birth. And therefore while the physician should never lose sight of the essential general nature of the disease, he should always observantly and anxiously watch the peculiarities of each individual case.

The therapeutics of cholera can be brought under the following heads:—

1. Empirical, adopted not for any particular reason that can be shown, or because it has been found beneficial in previous cases. The exhibition of calomel by the Old School is illustrative of this mode of treatment in cholera.

2. Rational, because adopted with some reason, or, at least, some show of reason, and is either—

(1.) Etiological.
(2.) Pathological.
(3.) Etiologico-pathological.

(1.) The etiological therapeutics is directed towards the cause, and consequently varies according to the view taken of the cause.

Those who hold that cholera depends upon the presence in the system of a poison which the system endeavours to throw out by the evacuations, advocate the eliminative treatment, by which it is proposed to assist nature in her expulsive or eliminative

efforts. Purgatives and emetics are accordingly the remedies employed by these physicians.

Those however who while they believe that cholera is the result of some subtle poisoning of the system, look upon the evacuations as exhaustive discharges caused by the specific deleterious influence of the poison itself upon the digestive tract, adopt the antidotic treatment. This may be either—

(i.) Antidotic of the poison itself; or
(ii.) Of its effects; or
(iii.) Both combined.

(2.) Pathological therapeutics has reference only to the condition of the system as an effect, without any reference to its cause, and therefore corresponds to the second head of antidotic treatment, without ostensibly being antidotic.

(3.) It is etiologico-pathological alone which takes cognizance of the cause as well as of the effect, and thus corresponds to the third head of antidotic treatment.

I.—The preliminary stage of the disease, we should consider to cease with the first appearance of the rice-water stool. It is of variable duration and severity. It generally occupies only a few hours, but it may occupy even a few days. And from being a slight malaise barely distinguishable from health, it may exhibit profound prostration hardly distinguishable from the actual disease itself. About the end of it there is purging, or purging with vomiting or at least nausea; but it does not necessarily commence with these symptoms. It is however essentially characterized by disturbance of the digestive organs. Often at the beginning there is some constipation, and almost always an impaired appetite. However produced, these ought to serve as warnings, especially in seasons when the disease is raging. But unfortunately these warnings are too often disregarded and the individual goes on with his usual vocation, and what is worse, his usual diet. It is not simply the quality but the quantity as well of the food that very often disposes to attacks of cholera. The quantity being small, even bad quality of food may not be seriously injurious. As the most fertile cause of the disease we may mention the use, of course excessive, of raw, acid, or sub-acid fruits, of ripe fruits in a state of decomposition. In this country new rice is a very frequent predisposing, and sometimes exciting, cause

of the disease, especially among the poorer classes. Next in order we should mention greasy food, putrid animal food, ill-cooked food, fried food, food not sufficiently salted, or too much salted. Late hours, and excessive indulgence in alcoholic drinks, especially the fermented beverages, do very frequently predispose to the disease.

The treatment of the disease in the preliminary stage is perhaps the most difficult of all. On this treatment the subsequent character and course of the disease will in a great measure depend. We do not mean to say that the disease can in every instance altogether be averted; but our firm conviction is that it can be in a large number of cases, and that the mortality can be greatly lessened.

The cases are very few in which we have not been able to trace the disease to some influence over which the individual had control; and in the majority of instances we could detect some error in diet previous to the attack. We do not question the general nature of the cause which predisposes to cholera, but we doubt if in any instance the immediate exciting cause is not some deviation from the ordinary course of living. We draw attention to this fact from a belief of its importance. People should be made acquainted with the predisposing and exciting causes of the disease, in order that they may avoid those which can be avoided. Besides, in homœopathic treatment a knowledge of these causes is essential. In fact, the treatment of the preliminary stage should be chiefly directed to counteract their deleterious influence upon the constitution.

The first anxiety of the physician should, therefore, be to inquire into the previous history of the patient, in order to ascertain the determining cause. This should never be neglected. The patient and his friends and relations will almost always tell us that nothing unusual has preceded the attack; and we may be charged with idle, if not impertinent curiosity, for making such minute inquiries. But we should be perfectly heedless of these remarks, and we should never be satisfied till we have succeeded in discovering the antecedent circumstances calculated to disturb the digestive functions or at least exhaust the nervous energies. Treatment directed according to these circumstances will be more successful.

The proximate cause of the disease is depression of the ganglionic system immediately concerned in the functions of digestion and respiration, and some irritation of the alimentary mucous tract. What causes this unusual depression of the ganglionic system has not been ascertained. By some it is considered simply an electrical disturbance of the atmosphere, by some it is looked upon as a deficiency of ozone, the great purifying agent. It is generally looked upon as a material poison, but medical philosophers are not agreed as to its true nature, genesis, and mode of propagation.

The object of treatment in the preliminary stage is to counteract the general depression of the system and to remove the irritable condition of the digestive organs. Ordinary (allopathic) therapeutics effects this by a variety of modes, and generally by a combination of drugs. Opium is the drug mostly relied upon in this stage, and we think very justly. No drug is so calculated to soothe irritability and raise the vital energies as opium. It should not however be indiscriminately used. It is injurious in a loaded condition of the bowels, and here it is required to be prescribed in combination with other drugs, capable of assisting digestion, or of counteracting the injurious influence of undigested food. It is generally used in combination with carbonate of soda and peppermint water; and not without good effects. When the depression of the system is great, the opium is used with the aromatic spirits of ammonia, or brandy, or both. Sometimes a dose of ammonia or brandy has been effectual in warding off an attack of the disease, no doubt by keeping up the vitality. In this stage astringents are not without use; they are however useless when the choleraic stools are fairly established and the depression is great.

The great drawback of the allopathic treatment of cholera, as in fact, of all disease, is that it does not attack the very seat of the disease; and consequently the drugs being used in massive doses produce other effects than simply removing the symptoms they are prescribed for. We can avoid this by a *judicious* homœopathic treatment. We say *judicious* advisedly, because our conviction is that even homœopathic treatment when not so will prove injurious. We submit, it is a mischievous error to think that homœopathic remedies do no harm if they do no good. Our experience has proved the very reverse. Indeed, common sense suggests that if potent

for good when rightly administered, they must be potent for evil when wrongly administered; and so we find them to be. The injurious effects of homœopathic medicines often show themselves not merely in the shape of aggravations, but also in the development of other morbid conditions not present in the case. Hence we cannot too strongly deprecate what is called domestic physicking, when scientific medical aid is available.

In this stage the remedies that are used homœopathically are the following:—

Aconitum, when there is nausea with sweat, at times preceding at times following the diarrhœa; when with the white stools, there is red urine; when the hypogastrium on being touched feels painful and sensitive; when the weakness of the bowels has resulted from the abuse of purgatives; when there is a sensation as of a warm liquid coming out of the anus. Aconite, in fact, is exceedingly useful when the alimentary irritation has culminated in acute congestion of the mucous membrane.

Arsenicum or *China*, when the disorder of the bowels can be traced to eating fruits. We prefer *ars.* when there is disturbance of the stomach as well as of the lower bowels, especially where there is burning of the stomach; *china* when with the stools the undigested foods make their appearance.

Pulsatilla, when indulgence in fatty or greasy food has been the cause of the diarrhœa; when the diarrhœa has followed an attack of measles; when the diarrhœa is chiefly nocturnal; when the stools look like stirred eggs; when the stools are first green, then consist chiefly of mucus. *Puls.* is especially adapted for females and persons of effeminate nature and reserved disposition.

Nux vomica, when intemperate drinking with or without the use of rich food has preceded the attack, and when there is much acidity of the stomach, especially if the diarrhœa has followed a constipated condition of the bowels. *Nux v.* is useful in diarrhœa when it occurs early in the morning, and after dinner; when the stools are fœtid and a-bilious; when there is ineffectual urging to stool. It is adapted for persons of irritable disposition.

Phosphorus or *Phosphoric Acid*, when the disease has supervened upon a chronic, especially painless diarrhœa. We prefer *Phosphorus* when there is a good deal of heat in the abdomen, or

coldness and a sense of coldness therein; again in the case of old people with fatty degeneration of the liver, and other important organs, we would give preference to *phos.* We should use *phosph. ac.* when we have reason to suspect there has been much sexual intemperance preceding the attack.

Carbo veg., if the patient had been exposed to great heat either of the sun or of the fire. It is very useful for cooks, blacksmiths, masons, and to all those whose occupation exposes them to the sun or the fire. Sometimes cholera is ushered in by hæmorrhage from the bowels; in these cases we have found *carbo v.* eminently serviceable. *Carbo* is useful in diarrhœa associated with flatulence.

Chamomilla or *Colocynth*, when the disease would seem to have arisen from fits of anger or chagrin. We would prefer *coloc.* if anger and chagrin had been combined in producing the result.

Ipecacuanha when the tongue is coated white, when there is continual nausea with or without vomiting, when the stomach still continues loaded with heavy indigestible food, when the diarrhœa is accompanied with pain, griping, tenesmus, and when the stools are grass-green or lemon-colored, or have the appearance of being fermented, or when they are fœtid or covered with bloody mucus. *Ipecac.* and *cham.* are specially serviceable in the cholerine of children, the latter being particularly indicated when the diarrhœa is dependent upon teething.

Camphor: Hahnemann recommends it*—"When the cholera first attacks, in the commencement in its first stage (with tonic spasmodic character); the strength of the patient suddenly sinks, he cannot stand upright, his expression is altered, the eyes sunk in, the face bluish and icy cold, as also the hands, with coldness of the rest of the body; hopeless discouragement and anxiety, with dread of suffocation, is visible in his looks; half-stupified and insensible, he moans or cries in a hollow hoarse tone of voice, without making any distinct complaints, except when asked; burning in the stomach and gullet, and cramp-like pain in the calves and other muscles; on touching the precordial region, he cries out; *he has no thirst, no sickness, no vomiting or purging.*"

We have given Hahnemann's indications of camphor in his own words, inasmuch as there has prevailed great diversity of

* Lesser Writings; *Dudgeon's Translation*, pp. 845—6.

opinion regarding the use and efficacy of that drug since his time. While some, such as Dr. Hempel,* have gone so far as to altogether deny the homœopathicity of camphor to cholera in any stage; others, such as Dr. Rocco Rubini of Naples, have gone as far in the opposite direction,—and this is far beyond the Master,—as to assert that camphor alone presents the true similimum of cholera in all its stages. According to Dr. Rubini cholera is a disease of an exceedingly acute and evanescent character, and therefore must be met by a remedy whose action must be analogously powerful and evanescent, which, in his opinion, is no other than camphor. We do not believe that cholera is in every case a very transient disease. Even when left to itself, it continues for many days and even many weeks, of course not in the shape in which it first manifests itself, but in the form of the sequelæ which it gives rise to. We do not question the accuracy of Dr. Rubini's statement, that of 592 cases treated with camphor alone not one ended fatally. Dr. Rubini himself admits that he got to treat his own cases in the very first stage and that very few of the whole number were especially severe (in the Royal Alms-house only 15 in 200). This cannot justify the sweeping conclusion that all the stages of the disease will yield to camphor. Hahnemann is more correct, though not quite so, in limiting the use of the drug to the stage when no sickness, no purging or vomiting have yet taken place. Diarrhœa, it appears, must be a very rare symptom of camphor; the *involuntary diarrhœa* noticed by Jahr must have been the effect of an extreme dose.† Again the nausea and vomiting are not frequent effects of camphor; in all the reported cases of poisoning these do not figure at all. But these symptoms do now and then appear. I observed them lately in a child who had taken a large quantity of the drug. From these facts it must be evident that camphor can be in homœopathic rapport to but a very few cases of cholera. Hence the reason of its failure when used indiscriminately.

At the time Hahnemann wrote his now famous directions for

* Materia Medica, 2nd Ed., Vol. ii, Art. Camphor.

† Our excellent Colleague Dr. Salzer tells us, he had involuntary stool from camphor after having used it (when in his native country, Austria) as a prophylactic against cholera for three or four days. He got the involuntary stool two days *after* he had discontinued the drug. The stool was thin, but *blackish*.

the treatment of cholera, the disease was perfectly unknown to him, it was looming in the far distant, he only knew of it from report. As far as his knowledge of the disease went, his recommendations for its treatment bear the impress of genius and unmistakably point to the truthfulness of the law of healing discovered by him. Used according to the indications pointed out by him, camphor will give "rapid relief," and patients will be restored to health, "as if by magic." The use of camphor need not be restricted to cases where purging and vomiting and even sickness have not yet commenced. We have seen it remarkably useful even after the first few stools and fits of vomiting, but it is generally useless when these are fairly established. If it acts usefully in these conditions, it is on other than the homœopathic principle, probably as an anti-miasmatic and a stimulant. As such, however, its action can only be in demand for a short time, beyond which it will be positively injurious, which we have often seen it to be. The homœopathic physician, when called upon to treat a case, in which allopathic drugs have been fruitlessly employed, may preface his treatment by the exhibition of camphor, but he should be content with a dose or two.

II.—The second stage or full development of the disease commences with the establishment of the rice-water stool and vomiting. In this stage the prostration becomes serious, indicated by an exceedingly feeble pulse, sunken and pinched features, hoarse voice, cold, clammy skin. The urine becomes totally suppressed. These are the general features of this stage, and constant in all the forms met with. Distinctive features arise, as we have said above, from the preponderance or unusual development of some one or more of the symptoms. Thus in the diarrhœaic variety we have the downward evacuations from the bowels extremely frequent and profuse. In the gastric variety we have the irritability of the stomach, evidenced by the nausea, continual retching and vomiting, as the most distressing symptom. In the gastro-enteric variety we have both vomiting and purging in an equally distressing degree. In the spasmodic variety, we have the spasms in a most alarming aspect;—first commencing in the lower extremities, they next manifest themselves in the upper and are then found in the muscles of the abdomen and chest, threatening suffocation and syncope, by invading the diaphragm and the muscular

structure of the heart. In this variety the spasms are generally out of proportion to the evacuations, though in some instances they may apear to be in direct ratio to them. In the inflammatory variety we have a bounding, full but easily compressible pulse, heat of abdomen, and sometimes of the general surface. In what is called the acute variety the prostration is quite out of proportion to the evacuations, the countenance at once becomes livid or blue, the pulse rapidly fails, the voice becomes a whisper, the perspiration becomes profuse and clammy and seems to take the place of the evacuations. In the dry variety this stage seems to be wanting, or rather is followed at once by the next stage or collapse, before being manifest outwardly.

The chief remedies in this stage are *veratrum, arsenicum, cuprum, secale cornutum,* and *aconitum.* The differential indications of these drugs are of course to be gathered from their pathogeneses. In general terms we can only say that in the diarrhœaic variety we should prefer *veratrum;* in the gastric variety, *arsenicum;* in the gastro-enteric variety, *arsenicum,* or *arsenicum* in alternation with *veratrum;* in the spasmodic variety, *cuprum* and *secale* in the dry and acute varieties, *camphor,* and after it *arsenicum;* in the inflammatory variety, *aconitum.*

Veratrum and Arsenicum are the two great remedies upon which homœopathic physicians chiefly rely when the cholera is fully developed. It is usual to give veratrum first and then to follow it up with arsenic if it fails to arrest the progress of the disease. It is not easy to determine which drug is to be used in preference. Both the drugs have a great deal in common, especially in reference to those symptoms which analogise with those of cholera. There seems however this difference between them, that the prostration of veratrum seems to be in direct proportion to the alvine evacuations, whereas the prostration of arsenic is more profound, is a destructive effect of the drug upon the very innermost recesses of life. The discharges of veratrum, both by purging and vomiting, are copious and free, whereas those of arsenic are scanty, and attended with distressing urging and retching. Both the drugs are indicated when there is violent, unquenchable, burning thirst, especially for cold drinks; but veratrum should be given in cases where the patient can take large draughts of water without any inconvenience, and arsenic should only be

given when the patient can swallow but little at a time, and that little aggravates all the symptoms, especially the vomiting and the purging. Besides, arsenic is a powerful antidote of various miasmata which veratrum is not. Veratrum therefore would be more suitable in sporadic cases, and in the mild cases during epidemic visitations; whereas arsenic would be indispensable in times of epidemic virulence, and in all cases in which prostration precedes the outbreak of the disease, and has probably resulted from miasmatic infection. In such cases it would in our opinion be simple waste of time to withhold the administration of arsenic till veratrum has failed.

When the cholera declares itself at once in the spasmodic form, the spasms being simultaneous with the first vomiting and purging, and being as alarming as these and other symptoms, or when the spasms become developed in the course of the treatment and in spite of it, our chief reliance is on *cuprum* and *secale*.

We prefer *cuprum* when any of the following symptoms are present:—When drinking, the beverage descends into the œsophagus with a gurgling noise; when there is desire for warm food and drink rather than for cold; when with the nausea and vomiting there is the most violent, horrid colic in the abdomen; when the vomiting is prevented by drinking cold water; when there is vomiting of water, after slight nausea and inclination to vomit, accompanied by profuse lachrymation; when there is tingling in the rectum as of ascarides; when there is spasm in the throat which hinders speech; when there is suffocative arrest of breathing.

We give *secale* when the spasms are not relieved or only partially relieved by *cuprum*, and especially when they present the following distinctive features; the extensors and abductors are more affected than the flexors and adductors, in consequence of which the toes and fingers are spread *asunder* and bent *backwards*; the facial muscles are specially influenced, by which there takes place the most unpleasant distortion of the features, and the mouth is spasmodically distorted or closed; the patient also frequently bites his tongue. *Secale* is preferred when any of the following symptoms are likewise present:—considerable dryness of the mouth and nose, not relieved by drinking water; vomiting of mucus, lumbrici, or ascarides; vomiting affords relief; vomiting without much effort.

Of the use of *Aconitum* in the preliminary stage of the inflammatory variety of the disease, we have spoken above. From the slight experience we have had with the drug we are inclined to believe it is likely to be of considerable service in the other stages. Those who view cholera in the light of fever* look upon aconite as the infallible specific in the disease. Without going this length we may say that this remedy has been but very little thought of by the homœopathic physician. It has pathogenetic effects which analogise strongly with the characteristic symptoms of cholera. It has inclination to vomiting, with violent diarrhœa; it has vomiting and watery diarrhœa; it has the hippocratic countenance so distinctive of cholera; it has bluish face with black lips; it has expression of terror and imbecility in the countenance; it has coldness of the extremities with blueness of the nails of the toes and fingers, coldness of the extremities with collapse of pulse.

* "That which engages our attention most in this disease is the specific poison which accelerates the pulse, disturbs the whole economy, irritates the nervous system, and increases the contractions of the heart What renders the pulse scarcely perceptible at such times we do not know. That the blood deprived of its water, circulates with more difficulty in the blood-vessels, during the last contractions by their natural elasticity, which in consequence lessens the vitality, we have not denied. But the practical idea we wish to establish as the essential feature of this disease, and the only one we have to guide us in our treatment is the *acceleration* or the *augmentation of the pulsations*, in a word it is this which we all characterise as *la fièvre* That which we have advanced is not a hypothesis; for we can well remember in the cholera cases we examined when under our supervision in the charity hospital, in 1854, and in our private clinique in 1865, that the increase of the pulse more or less coincided with the degree of the disease, and not with the anguish or suffering; because the pulse frequently disappeared at this moment"—Dr. Cramoity on Aconite in Epidemic Cholera: Translated from the Bulletin de la Société Méd. Homœop. de France in the *North American Journal of Homœopathy*, May 1867.

(*To be continued.*)

Dr. SMITH'S REPORT ON PILGRIMAGE TO JUGGERNATH.

We looked upon the appointment of Dr. Smith to the sanitary commissionership of Bengal as a most fortunate one. From our knowledge of his ability and zeal we were certain he would discharge his duties to the satisfaction of all. Our sanguine anticipations have been more than realized. With head and heart he has been at work and already we have fruits of his labours which are ample evidence of his devotion to the cause of science and of humanity. His views and sentiments are characterized by a breadth and liberality rarely met with in these days of bigotry and prejudice. There is an earnestness about him, and a desire to arrive at truth, come from what quarter it may, that cannot fail to command the admiration of even those who might not agree with him in all the points he wishes to advance.

The Report on Pilgrimage to Juggernath is a most exhaustive and philosophical one of its kind, written in the author's most felicitous style. Dr. Smith here shines out as the man, the medical philosopher, and the philanthropist. Verily, we may say, "the wants and woes of Orissa" have found in him a most worthy and eloquent advocate. May we hope that his able pleadings will succeed in moving our rulers and our *millionaires* to resolve upon putting a stop to what is nothing else than a blot on the government and a disgrace to the national faith.

The Report is divided into six parts:—

1. Sanitary survey of Pooree; with suggestions regarding its sanitary requirements.

2. Narrative of a visit to the Temples of Juggernath, Bhobaneswore, and Jajipore; and of a tour through the province of Orissa.

3. Regarding a Pooree Lodging-house Bill.

4. Remarks on the manner in which Pilgrims are treated by Priests and Pundahs. Remarks as to the impossibility of prohibiting Indian Pilgrimages. Remarks as to the advisability of levying a Pilgrim Sanitary Tax.

5. Regarding cholera and inland quarantine, in their relations to pilgrimage.

6. Concluding Remarks; embodying suggestions as to the best mode of providing, financially, for the regulation of pilgrimage through Orissa.

Dr. Smith thus describes his first entrance into Pooree, which was at midnight of the 23rd June, 1868.

"I had been anxious to get to this celebrated place before dark; but this I found to be impossible. My first view of the city was by starlight. As I passed up its principal street—the Burra Dund—which is nearly a mile long and very broad, I observed, chiefly at the far end of it, many thousands of pilgrims lying on the ground, sleeping quietly; there was no noise; here and there a small wick lamp was burning, which had been lit by one of a party of individuals lying huddled together, a little apart from the rest of the slumbering crowd. The scene was peculiarly impressive. Those numberless men and women, enjoying much needed repose, had come together from every point of the compass,—many of them from very distant places,—all actuated by the one burning desire to reach Juggernath. Here at last they had accomplished their desire, and, wearied with the accumulated fatigue of many marches, they lay in perfect stillness on the bare ground. Not a sound was to be heard; the stars yielded faint light, and before me I saw, as if in a dream-land, an army of religious enthusiasts, who, in the fervour of a fanatical creed, had completed a pilgrimage which, to the Hindu mind, is the surest *viaticum* to a happier state of being."

The result of the sanitary survey of Pooree is given in the following graphic picture:—

"I consider the city a very filthy one indeed. It is almost difficult to say what is here most required, in a sanitary point of view. Indeed, it is scarcely too much to assert that *every thing* is required very urgently. The causes of insalubrity are many, and they prevail widely. Throughout the whole place there is a sickening odour of human beings massed together. The houses are horribly overcrowded. The interiors reek with nauseous human exhalations. There is no systematic conservancy, no drainage, no cleanliness, so far as I could observe, there is not such a thing as a pavement in Pooree. The sources of water supply have been polluted from time immemorial. For centuries every variety of nuisance has been committed throughout the precincts of the place, and it is now, in many parts, loathsome from the concentrated and persistent odour of fœcal matter in a state of decomposition. The cloacal abominations discoverable in the gardens, intensified by heat and moisture, are almost unapproachable. The gutters are equally offensive. On all sides the air is foul to suffocation, with emanations from garbage and putrescent *débris*. There is a universal dearth of oxygen. Carbonic acid, ammonia, carburetted and sulphuretted hydrogen abound to a poisonous degree. Words fail me as I endeavour to depict the whole truth.

"It is here that for ages millions of poor, broken-down, spanœmic creatures have congregated for religious purposes, in the midst of devitalizing agencies. Here, at many different times, they have died by thousands; here famine, cholera, and dysentery have, ever and anon, held their sway; here many thousands of pilgrims are still fated to meet together after periodically recurring intervals of time; here thousands will die, in the future, from

the influence of those local causes of specific diseases which are so painfully apparent to the sanitarian; here at many seasons of the year, is an unusual amount of sickness and misery, capable of removal by the expenditure of money; here broad-cast, are countless permanent influences productive of physical and moral contamination and degradation; here are localized perennial sources of human wretchedness, in constant and powerful operation; here, during outbreaks of epidemic disease, are all the conditions which facilitate their rapid spread, favor their activity; here pestilence finds a congenial resting-place, vice a hot-bed, and death a home; here, the longer the evils I have painted exist, the greater and more imminent will be the danger to public health and safety."

Dr. Smith therefore justly remarks that "the study of Pooree and the pilgrims there comprises a vast subject; one not affecting Pooree alone, or even Orissa, but, indirectly, every part of India." The subject of pilgrimage has now other bearings than religious, moral, and social. From the fact of its intimate connection with the genesis and spread of some of the direst diseases it offers to the sanitarian a study of the deepest concern. In ancient times when the intercourse between the nations and peoples of the world were of the most meagre description, pilgrimages must no doubt have served a most civilizing purpose. It is undoubted however that they are becoming anachronisms in the present age. Their utility in a religious, moral, and social point of view has almost vanished; and the only end with which they are now attended seems to be the multiplication of disease and destruction of human lives. But ought we on that account to prohibit pilgrimages by legislative enactment? This appears to Dr. Smith an atrocious suggestion, and we heartily agree with him. "The truth is," says he, "pilgrimage is a custom that can never be fully suppressed by any prohibitive measures. It is an evil, the root of which lies in great national ignorance. If it were abolished to-morrow, its spirit would still live; the only thing that can uproot it being education and general enlightenment."

Equally opposed is Dr. Smith to the levying of a pilgrim tax for the carrying out of sanitary measures. "All things considered, I am of opinion that no tax or toll should be levied from pilgrims; nor do I think they should be licensed to go on pilgrimage. Such measures would, it appears to me, at once bring the Government into distinct relation with the shrines, and with the free-will of persons desirous of proceeding to them." Dr. Smith is opposed to the imposition of a sanitary tax on pilgrims on other and more

humane grounds, fearless of any charge of absurd delicacy of conscience or even of sentimentalism. "Can any one," he asks, "look and watch those attenuated, destitute creatures on the roads of Orissa, and yet recommend that they be taxed by Government? I believe that any tax would, directly or indirectly, tend to beggar them."

Dr. Smith's suggestions regarding the sanitary requirements of Pooree are chiefly based upon those recommended by Dr. Mouat in his "Memorandum on Cholera among the Pilgrims at Juggernath."

According to Dr. Mouat the Civil-Surgeoncy of Pooree should again be given to a European officer, who should be *ex-officio* Protector, or Sanitary Inspector of Pilgrims, and should be armed with full powers to enforce the regulations that might be framed. Dr. Smith would have a special health officer who should be a general medical inspector of houses and their surroundings, of food supplies, of hospitals, and systems of medical relief; who should study and report upon all the moot questions connected with the nature, cause, and laws of cholera and other fatal diseases; who should make careful observations on temperature, rainfall, barometric pressure, humidity of atmosphere, direction of wind, condition of soil, height of water in wells, and closely watching the relation of all these to the appearance and disappearance of cholera; who should pay particular attention to the disposal of the night soil of the place, the condition of surface drainage, the conservancy of drinking water, the prevention of nuisances, and all other matters directly or indirectly affecting public health; who should be continually amongst the people, trying to act on their good will, in order, as far as possible, to persuade, rather than compel them to practice domestic and general cleanliness, and to live generally in accordance with the laws of health. Dr. Smith would, very judiciously we think, withhold all magisterial powers from him. We are not disposed to quarrel as to the post of the Health Officer being given to a European. But we cannot help observing that we do not see any thing in his duties which cannot be discharged satisfactorily by a graduate of the Medical College of Bengal. The principles of sanitation and hygiene are simple in themselves, and we do not see any reason why they cannot be mastered by a

native as well as by a European. The present civil medical officer of Pooree is a native, and one who is, we believe, discharging his arduous duties to the satisfaction of all. He might be promoted to the post of Health Officer, and an ordinary sub-assistant surgeon might fill his post. Both Drs. Mouat and Smith would have the sub-assistant surgeon of Pooree of a high caste Hindu. So long as he is a Hindu we do not see why he should be a high caste one. One of the peculiarities in Pooree is, at least such is the boast of the priests, that there is no distinction of caste there. Now in this case there should be no objection to any one's entering a temple or other sacred place, provided only he is a Hindu. Besides, if caste distinctions were observed, the sub-assistant surgeon by virtue of having studied the European system of medicine, will be looked upon as having lost his caste, and the caste to which he might belong would avail but little.

The next suggestions are with reference to the regulation of lodging-houses, the sale of the *mohaprasad* or the holy food, the establishment of hospitals and dispensaries along the high road through Orissa, the cleansing and purifying of towns, the deflection of pilgrim routes, the establishment of a special cholera hospital and temporary cholera sheds, &c.

The Pooree lodging-houses when occupied are no better than black-holes. "In apartments containing 50 or 100 people," writes Dr. Smith, "there is very little light, less pure air, and no ventilation." It is all right therefore that they should be under the simplest sanitary regulation as regards space, ventillation, drainage, water-supply, and conservancy. For this purpose Dr. Smith drafts a Pooree lodging-house bill, but with his characteristic anxiety points out the difficulty that lies in so working the bill that pilgrims shall not be rendered houseless, and that they shall not otherwise be subjected to serious hardships; for the pilgrims, if driven out of the houses by much interference, are likely to suffer much more from damp and exposure than from overcrowding.

It must be evident that the carrying out of the above sanitary requirements would involve a large expenditure. Where is the money to come from? Dr. Smith, as we have seen above, is opposed to the levying of a pilgrim sanitary tax. How then to

meet the expenditure necessary to carry out his recommendations? Dr. Smith answers as follows:—

"It has been suggested—I think judiciously—that wealthy Native gentlemen, repairing to Juggernath and other much frequented shrines, should be stimulated to make donations towards the mitigation of the evils attending pilgrimage undertaken by the poor; and voluntary subscriptions with a similar object might, in other ways, be encouraged. For this purpose, a "Pooree Sanitary Fund" might be established. If a lodging-house bill should come into operation, a certain sum of money will be available from that source, and something may also be derived from fines imposed for breach of conservancy laws, although I am aware that it is not right to depend upon such fines,—laws being framed to be obeyed, not to be broken. But over and above these possible sources of local municipal revenue, I cannot but think that the Government should annually allot, from the public treasury, a large sum for the systematic alleviation of the physical miseries which are so painfully apparent throughout Orissa during the entire year, but particularly at stated periods, when people, from every part of India, crowd thither. This is a matter by no means affecting Pooree alone, or even Orissa, nor does it bear merely upon the comfort of pilgrims. *It is a great question affecting the health-interests of the general population of India.* If it is regarded in any narrower light than this, its true character and bearings must be misunderstood. Looking at the subject in its true and vastly comprehensive relations, I think it is not too much to say that Government would act wisely in setting apart, from the imperial revenue, one lac of Rupees a year, for the next three or four years at least, for the special object of inaugurating and enforcing all such measures as modern science teaches us are capable of mitigating the evils which attend on those destructive outbreaks of epidemic disease that year after year account for a vast deal of preventible mortality in Orissa.

"Some may say, this is not a directly reproductive work. In such an opinion I cannot but entirely disagree. Carried out fairly, it would, I believe, be found to be directly and largely reproductive—in life, in labour, and in money; in the prosperity and happiness of a people; in their unspoken gratitude; and in their attachment to a Government willing and anxious to be to them as an active and useful friend,—not a mere passive and indifferent spectator of their many removable misfortunes."

There is in the Report before us one other matter of vital importance in the present age, namely, quarantine as a preventive of cholera. Dr. Smith discusses the subject with great ability and concludes that "the laws regulating the diffusion of cholera are beyond its influence; and it is undoubtedly a measure capable of giving rise to an infinite degree of personal inconvenience, discomfort, unhappiness, and oppression." We are sorry we cannot do justice to the question in our present number.

REFLECTIONS OF A FUTURE HISTORIAN OF MEDICINE.

By Leopold Solzer, M. D.

The future historian of Medicine, or what may be two hundred years hence, of Homœopathy, will have no small number of contradictions to balance, of intricacies to solve, before putting himself into the right position of laying before his readers a proper judgment upon that branch of science and art, so inseparable from the weal and woe of mankind, so highly important to nations as well as to generations.

It will be no insignificant puzzle for instance to our historian to find it recorded that, there has been centuries ago an antagonistic medical school, the partizans and practitioners of which stood in such high and general reputation that they did not deem it in the least ridiculous to style themselves the legitimate practitioners of medicine; that they fought the battle against the now generally adopted therapeutic system, with the persistence of a lion and the rage of a Bengal tiger.

Why, he will ask himself, why that long lasting fight against a truth, the confirmation of which our Doctors of 2069 daily establish in every part of the globe thousands and thousands of times by their medical practice? Did the Doctors of the nineteenth century, he will further ask himself, make trials on the homœopathic principle and find it wanting? Is it possible that the healing law of the present age is different .Here he will stop the train of his thoughts and betake himself again to the perusal of some worm-eaten treatises on the principles of medicine, but nowhere could be discover anything like a regular system of practical trials. Most wonderful, he will grumble to himself, most wonderful for that age of experiments!

Perhaps they did not rightly understand the spirit of our dominant system of medicine? And he recurs to the medical literature of bygone days.

Was that the way, he exclaims after some perusal, was that the way they studied true medicine? They undeniably knew already that there are material bodies floating in the air, undetectable either by the microscope or by chemical analysis, but never

the least endowed with a disease-producing faculty; in their writings they often speak, and very learnedly too, about effluvia, miasmata, zymotic diseases, etc.; and yet, what a display of ridiculousness against any supposed action of homœopathic infinitesimals! But these drug-infinitesimals, our authors state, have been actually tried on healthy persons, and, lo! the prover would not die, nor would he fall sick from the 30th dilution of any of them. What a pity, thinks our future historian, what a pity, our learned authors did not make themselves acquainted with their subject before delivering themselves of so interesting a statement. They would, by a little more study, have observed, that massive poisonous doses act, as a rule, unconditionally on every subject of whatever sex, age, temperament and constitution he might happen to be; whereas those invisible, imperceptible, so called infinitesimal poisons, although not less virulent in their effects, act conditionally. In an atmosphere impregnated with carbonic acid, every one, without exception, will be more or less threatened with asphyxia; whereas an atmosphere impregnated with malarious fever-poison will affect some, while others breathing the same air and leading the same mode of life, will enjoy good health as usual. The same is the case with those provings conducted with infinitesimal doses; only those provers will reveal drug-symptoms who are constitutionally predisposed to the peculiarities of the proved action of the drugs. A choleric temperament is likely to be affected by *Nux Vomica*, and will not vainly make a trial with even a higher dilution, whereas a melancholic temperament will as likely remain unaffected by it; *Ignatia Amara*, although of the strychnos family, will, in the last case, be found more suitable to reveal its specific drug-symptoms. So will the higher dilutions of *Belladonna* be advantageously proved by individuals of a plethoric; *Bryonia Alba* and *Rhus Toxicodendron* by those of a rheumatic; *Phosphorus* by those of a phthisic, whereas *Phosphoric Acid* by those of a nervous constitution, etc. Our poor authors seem to have forgotten that, in order to make supposed scientific experiments, one must before all have a certain knowledge of the subject. In their rough and vague statements, they resemble a man who would firmly assert that there is no such thing as malaria, because he never got fever in any country of the world; or that there may well be a zymotic state of the

atmosphere breeding scarlatina, because he himself was one of those attacked by it at the time when that epidemic prevailed, but no such thing as a cholera effluvia, because he had not personally experienced a cholera attack.

Strange, murmurs our future historian, strange, how the logic of the times changes! Those drug-infinitesimals whose predominant mission it is to cure, have been put to test by healthy persons; whereas those crude drugs, marked by their eminently poisonous qualities as the most dangerous agents to man's health, have been for thousands of years exclusively tried on the sick! Could there have been any other result than that the former would as little kill the healthy, as the latter would cure the sick? Or is it the very idea of "like cures like" which made them so averse to the homœopathic system, not having been able to conceive, how from the addition of one destructive force to another similarly destructive, health could ensue? But then, the same difficulty, and in a far higher degree, ought to have overcome them in the elaboration of their own cherished system of medicine, since they had to apply in all cases of sickness, directly destructive and disease-generating agents! For a homœopathic remedy, derived from a drug which would produce in massive doses a disease similar to that we attempt to cure, is evidently, in its pharmacodynamic action, by far less similar to that diseased state than the action of any massive drug; considering that the same is capable and actually applied in quantities to produce disease; considering further that, any two diseased states, however varied or even opposite to each other, are more similar than any diseased state to a non-diseased one.

The repugnance they felt, or at least affected to feel, towards the present system of medicine, our future historian continues reasoning, could not arise then from supposed illogical reasoning exclusively connected with Homœopathy; else they would not have adhered with such tenacity to their own dogma.

In continuing his perusal, a pamphlet falls into his hand with the title "Homœopathy Expounded and Exposed.—Calcutta, 1867." More out of curiosity than for instruction he goes on reading—"The following is the account given by homœopathic authors of the supposed discovery of this celebrated law by Dr. Hahnemann. In the year 1790 while engaged in translating Cul-

len's 'Materia Medica' into German, feeling dissatisfied with the explanation given of the curative powers of cinchona bark in ague, he resolved to try its effects upon himself; he took a considerable dose of Peruvian bark, and on the same day he was seized with a violent attack of intermittent fever." Our author, thinks the future historian, is here not quite exact in his statement; the fact is, it was the statement made by Cullen in his Materia Medica, that bark cures the ague and that bark produces ague, which arrested the attention of Hahnemann and led him to the above trial. This would be, at first sight a very immaterial inexactness; but it grows in importance from the moment the author begins to question the fact of the fever-producing power of cinchona, in so far as there is the authority of another medical observer stating the same fact.

The author of "Homœopathy Expounded and Exposed" puts Homœopaths and Spiritualists in the same class. Happy for him, our future historian is a non-spiritualistic Homœopath, else he would, no doubt, have evoked the author's spirit, shewing him the facts bearing on this point, as compiled in the *Monthly Hom. Review* for Dec. 1866, amongst others, that those who work in quinine-manufactories are regularly, and on a large scale, attacked with the genuine simile of ague; or, what might probably be more pleasing for the author's spirit, he would have confronted him with the spirits of Trousseau and Pidoux, who had in their life time made most remarkable statements to the same effect. That many are daily taking quinine without being attacked by ague, does not do away with the fact that others have been attacked, nor less with the conclusive fact that quinine is *capable* of producing fever. That very crew of whom we read, who had taken quinine continuously for one hundred and forty days without a single case of fever being produced by it, might as well have taken during the same hundred and forty days liquors, without a single case of intoxication being produced by it; are we therefore to conclude that liquors are no more capable of producing intoxication?

Our future historian discovers some more alleged proofs against Homœopathy in that remarkable pamphlet: "Camphor is administered by Homœopaths in cholera: you are all sufficiently acquainted with this substance, to know that if given to a person

in health, it will not produce cholera, or anything like cholera." Camphor is in reality administered by homœopaths, not in cholera, but in the premonitory stage of cholera, to which stage it is homœopathic indeed. Again:

"Many medicines are capable of curing morbid conditions of the body, which are not capable of producing any such condition in healthy persons. Thus preparations of iron cure anæmia; if the law of similars were true, iron given to a person in health would produce anæmia, which is not the case. Ipecacuanha given in large doses cures dysentery; but it cannot produce dysentery in the healthy. Iodide of potassium cures goitre, but cannot produce it, or anything like it."

Our wise author, thinks our not less wise future historian, has here evidently taken advantage of the supposed laity of his audience and reader. Iron cures anæmia without producing it in a healthy person! Why not say at once: bread cures hunger without producing it?—Anæmia consists in a deficiency of the red corpuscles of the blood, and of iron which forms their essential element. Such a want can only be remedied by a proper supply of what is wanting. No medical man has ever pretended that food was a medicine to a man suffering from starvation; well, what food is to a man of the above condition, that is iron to another of impoverished blood.

"Ipecacuanha given in large doses cures dysentery, but it cannot produce dysentery in the healthy"! The author is here at least candid enough not to add,—"or any thing like it." He seemed to know, although he kept it to himself, that Ipec. causes cutting pains around the umbilicus with shuddering; cutting, tearing colic; pain as from soreness in the whole abdomen; diarrhœa like fermented yeast; fœtid stools, mucus, streaked with blood; stool entirely bloody. All this does certainly not constitute the whole of the symptoms pathognomonic of dysentery, nor has Ipec. indiscriminately cured, at least alone cured, dysentery so generally as it is pretended by the author; otherwise it would not have been, in course of time, so often abandoned as an antidysenteric. Why our candid author had passed in silence the fact of allopaths having prescribed, as often successfully, grain-doses of calomel—a drug which avowedly produces dysenteric stools—is a secret, which in the year of 2069 can, as a matter of course, only be known to heaven.

"Iodide of potassium cures goitre, but cannot produce it, or

anything like it."—Here is what Christison, article Iodine, says about the effects of this drug. "In another and more common affection the patient is attacked with tremors at first slight and confined to the fingers, afterwards, violent and extending to the whole muscles of the arms and even of the trunk. At the same time there is excessive and rapidly increasing weakness, a sense of anxiety and sinking, a total suspension of the function of digestion, rapid and extreme muscular emaciation, tendency to fainting, and violent continued palpitation, accompanied sometimes with absorption of the testicles in man and of the mammæ in females. *In the midst of these phenomena the curative powers of the poison over the disease for which it has chiefly been used, namely goitre, are developed.* It has been remarked in particular, that the diminution of the goitre keeps pace with the diminution of the breasts." If in the face of such statements, our author had not hesitated to maintain that iodide of potassium (a milder, but still similarly acting preparation) *cures* goitre, then he might have been right to deny Homœopathy, and he would have certainly acted more correctly, had he, at the same time, told his audience, at what cost goitre can be cured on the non-homœopathic principle.

Our future historian before doing away with that pamphlet cannot help exclaiming: but where are the proofs of the fallacy of *similia similibus curantur?* Granted all that the author pretends to be true, to be exactly so, to what conclusion does it lead? That there are cures effected without Homœopathy. But where is it shewn by the author that like does not cure like? Where is the drug pointed out by him which would predominantly produce such or such a diseased state in the healthy, without being curative in a similar, natural disease? In other words: Homœopathy maintains that A cures C; author proves that B cures C; therefore A cannot cure C? Their schools of logic in the year of 1867 must have been strange indeed if a man could on such grounds, dare come before the public in all earnestness, "to put a plain statement of the *reasons* why the medical Profession *reject* homœopathy," and all this, in spite of the declaration that "I am perfectly willing to acknowledge that a large number of patients treated with infinitesimal doses recover. This fact is incontrovertible."

"We must surrender the whole of physical science, before

we can admit the homœopathic principle, that division and diminution increase strength. According to this principle, one horse should pull a carriage better than two; indeed one leg of a horse should exert more power than a whole regiment of cavalry."

Our future historian hastily turns to the title page; the author, he sees, was an M. D. of bygone times—and he could not comprehend, that the strength of a drug, generally speaking, consists in the intensity of its poisonous effects, which certainly increases with the dose; but that the drug's *healing* capacity begins just where it has, on account of the proportional minuteness of its quantity, totally ceased to be hurtful? Could he not perceive that in attributing strength to the part and to the whole, he altogether forgot, that he referred to two different classes of strength, the one being toxicologic, the other therapeutic; and that it would just as well be, to say, a kite cannot possibly have the *strength* of ascending in the air, since a ream of paper lacks that *strength!*

Our future historian recurs to a pamphlet of a later date written by Dr. Harvey at the end of 1868. The principle of *contraria contrariis curantur* is here denied to be a guiding one of the Allopathic School. "The truth is, it is a dogma invented for us, and thrust upon us, by the Homœopaths, and hence they nick-name us *Allopaths*. It is one, however, which, as a *law* or *principle*, we repudiate and disown. What there is of truth in it we accept, as we accept also what there is of truth in the dogma of "*Similia Similibus Curantur.*" Our author of Aberdeen is evidently more liberal in his views than our author of Calcutta; he will be more reasonable too? "The accepted orthodox dogma is—oh horror! neither of those above mentioned, but, *Natura Sanat, Medicus curat —morbos*; in English, Nature is the true healer, art is but her handmaid; the physician is but the humble servant and minister of Nature."—"The accepted orthodox dogma!" Accepted by whom? By the orthodox school of medicine. Who would then not have expected to hear something about a foundation principle of therapeutics, or about any system which guides the orthodox physician as to when and what to prescribe? Instead of this we come to hear that his therapeutic dogma is, that there is no principle, no system at all in his profession. Nature cures—so does nature grow corn and wheat; is the knowledge of that fact of any positive use to the agricul-

turist who intends cultivating corn or wheat? What he wants to know is, what makes nature best produce these desired vegetations; so we, as medical men, want to know, what makes nature best cure a patient. Any rule referring to that problem is of value to us, and when such a rule can be extended to a large class of, or to all cases, it becomes a therapeutic principle or a therapeutic dogma. Such was the dogma of contraries; such is that of similars. Both of them are rejected, and what Dr. Harvey puts in their place, is that "art (Medicine) is but the handmaid of nature"! How has that handmaid to behave, in order to serve nature? The *therapeutic* dogma, accepted by this New-old Physic, is dumb with respect to it, like a grave.

But while the adopted dogma of the orthodox school of Medicine, such as it is held up by one of the heroes of the profession, is utterly useless and valueless in itself; our author understands the art of making out of it a tremendous capital. For he goes, on that ground, to prove that there cannot possibly be *any* law of cure. It is true his arguments are chiefly directed against the pretended law of similars, but they hold just as well against any attempt towards establishing any law of cure. Let the reader judge for himself!

"Observe," he says, "a law of nature is a law by which *Nature herself works* in the production of certain results, or the maintenance of certain arrangements. It is so in the case of gravitation. By means of it, or rather in accordance with it, Nature conserves the established order of things in the heavens. Is it so in the case of the coordinate law of similars? Is it in accordance with it, that Nature herself works in the cure of disease? Dr. Reith admits the power of Nature to cure disease. What then is the law by which she operates? Is it the law of similars? If so, how does she work it? I can myself form no idea of it; and Dr. Reith is absolutely silent about it. It cannot surely be that Nature has one law for herself and another law for the physician. It were the oddest conceivable thing for a law, said to be of universal application and yet to be made only for the use of man—Nature herself working after a different law. In the case of gravitation, we have one law for man and Nature. This one understands. But it passes comprehension to understand how, in the matter of diseases and their cure, there should be a law of *universal* application ordained for man's use alone. If this be a misapprehension, let Dr. Reith clear up the difficulty. If the law of similars be a law which Nature herself obeys in the "*natural*" cure of disease, let Dr. Reith give us some intelligible exposition of her system. He has given us none. He tells us that it is in accordance with this universal law of similars, that Ipecacuanha

cures sickness. Is it in the same way that Nature cures it, when left exclusively in her own hands? If so, where does she get, and how does she administer her Ipecacuanha? Is there diffused every where through the atmosphere—say in ethereal form, infinitesimally attenuated the materials of a natural Pharmacopœia?... Any how, Dr. Keith is bound to inform us, what he, or his school, holds as to the point under consideration, namely, how Nature works out for herself, in the absence of the Homœopath, her own *universal* law of 'similars."

Granted for a moment Dr. Harvey is quite correct in his argument; how will he fare with his own method?—"What there is of truth in it *(contraria contrariis)* we accept, as we accept also what there is of truth in the dogma of *"Similia Similibus."* Suppose he had to deal with a case of syphilis; suppose he had found that in this special class of disease, Mercury, the similar, were curative; or to use words which suit Dr. Harvey's dogma, assist Nature best in curing syphilis, (although experience teaches that Nature left to itself, does not move a single step towards curing that class of disease.) The patient is better, but alas, our Doctor is the worse off. Since that one patient has been freed of his malady by the aid of Mercury, there can be no earthly reason why another patient, equally constituted, equally diseased, should not derive the same benefit from the same metal, administered in equal quantities and at equal intervals. In fact there can be no earthly reason why we should not extend the same result to hundreds and thousands of other patients, provided they be in every respect conditioned similarly to the first one. There must then be a necessary relation between syphilitic men and mercury, which results in converting such diseased men into healthy persons. Now the necessary following of one definite phenomenon after another, as well definite in its kind, we—and Dr. Harvey no doubt with us—call a law. It is then in consequence of a law of nature, or, to state again agreeably to Dr. Harvey's notion, according to which, a *law of* Nature is a law by which *Nature herself works* in the production of certain results, in consequence of a law *in Nature*, that a definite class of men, affected with a definite venereal disease will be cured when they take a definite quantity of Mercury at definite intervals. Observe: they will be cured according to Dr. Harvey's dogma, when unassisted Nature (man and syphilis left to themselves) could not, at least not radically or speedily, effect the conversion

of a sick individual into a healthy one, and the cure will be effected by a law, it is true not of an universal or general character, but nevertheless of the same bearing, importance, invariability, and validity in its own limited sphere, as the law of gravitation within the sphere of the universe. Let us see after this, how Dr. Harvey fares with his own questions, put before him in his own words, with only such changes as were required for his own dogma.

Dr. Harvey admits the power of Nature to cure *Syphilis*. What is the law by which she operates? Is it the law of *Mercurialism*? If so, how does she work it? I can myself form no idea about it and *Dr. Harvey* is absolutely silent about it. It cannot surely be that Nature has one law for herself and another law for the physician. It were the oddest conceivable thing for a law, said to be of *specific* application, and yet to be made only for the use of man—Nature herself working after a different law..... He tells us that it is in accordance with this *specific law of Mercurialism* that *Mercury* contributes to the cure of *venereal disease*. Is it in the same way that Nature cures them, when left exclusively in her own hands. If so, where does she get, and how does she administer her Mercury? Is there diffused every where through the atmosphere—say in grain and scruple doses—the materials of a natural pharmacopœia?.....Any how Dr. Harvey is bound to inform us what he or his school holds as to the point under consideration, namely, how Nature works out for herself, in the absence of Dr. Harvey, her own specific law of Mercurialism.

When the therapeutic system of Homœopathy was first started by Hahnemann, the good Old school of Medicine, then deeply and exclusively plunged in the contraria contrariis principle, cried and laughed down its inventor and his disciples; the infinitesimal posology more or less connected with that new system was ridden over as the folly of follies. All that Homœopaths could say in their defence was, that the task of Medicine is not to cure but to give impulse to nature to cure with her own hand; that large doses as well as the principle on which they are administered by the opponent school are calculated to violate Nature, to take the task of healing out of her hands, who alone can cure where cure is possible. Since then a New-Old school has arisen, taking the lessons of Homœopathy to heart, however following her

advice; nay, going even so far, to deprive Homœopathy of her foundation principle in transferring it to a newly adopted medical system, which, when closely looked at, proves to be, according to the confession of its adherents, all but a *system*.

The fact is, to put insurmountable questions in natural philosophy is an easy thing, as soon as we choose to mount the ladder of phenomena beyond the reach of our comprehension; amongst that class of problems, the question "how does Nature cure disease" is undoubtedly not the least perplexing one, and will, in all probability for ever remain so. But that on Homœopathy might be thrust the task, to solve the insolvable, more than on any other medical system, Dr. Harvey might have sufficiently proved, to the managers of the Aberdeen Royal Infirmary, to whom his pamphlet was addressed; but not to the medical world. Discussions as to how Nature cures, or how remedies assist Nature to effect or to complete a cure, remind one of that ridiculous spectacle, of one man going to milk a buck and the other to hold a sieve in preparation for the milk to come. Nature *spontaneously* cures neither by similars nor by contraries nor by any outward agent. This is evident by itself. How Dr. Harvey could earnestly sit down to write a pamphlet in reply to a man, whom he supposes to hold, that Nature cures *spontaneously* by *external* agents (similars) or by any agent at all—seems to be a wonder of the nineteenth century. Dr. Reith, in speaking of the law of similars, might have ill-applied the term *universal* law; his self-correction "within certain limits" may not have made good the ill application of the former term; so may on the other hand, Dr. Harvey have gone too far, when he chooses to understand by a *law of Nature*, merely "a law by which Nature *herself* works in the production of certain results, or the maintenance of certain arrangements" forgetting those latent laws of Nature, or in order to use distinction, those latent laws *in* Nature, the being brought to light of which depends on conditions which she is unable to realise by her own hands as the production of electricity by friction; the magnetization of a soft iron bar when brought into the magnetic meridian; the decomposition of a ray of light when passing through a prism, and, we may add, the removal of a disease by the application of an appropriate remedy. It is in this sense, Dr. Reith must have understood "his universal law, limited within

its own sphere" when he understood at all something by it. But Dr. Harvey and his colleagues who know little of Homœopathy, did not care much to refute the theory of Homœopathy nor the theory as expounded by Dr. Reith; all he cared for was to refute Dr. Reith's *Pamphlet*; there he found a few *words*, not expressed exactly enough, and a war unto death is declared to the whole system Dr. Reith represents.

On the whole, our future historian feels inclined to look upon Dr. Harvey's utterances as the first sign of the abandonment of the old errors; as the first step towards truth. Dr. Harvey at least does not repudiate the healing virtue of similars, and is on the other hand not the slave of the contraries. But alas, how great is his disappointment when he comes to the end of the pamphlet! There he finds appended, two Editorial articles, the one from the *Lancet*, the other from the *Medical Times and Gazette*, both of them, according to Dr. Harvey's confession, very much to the purpose. From these Editorials it appears that the school to which Dr. Harvey and his colleagues belong, are by far not so ready to attribute any healing virtue to similars as Dr. Harvey would have the Managers of the Aberdeen Infirmary believe. One cannot possibly read these Editorials without coming to the conclusion that Dr. Harvey used a piece of artificial eloquence toward his managers; just as he would have told them: You waver between an allopathic and a homœopathic physician? Nonsense, stick to the allopaths! are they not at the same time Homœopaths too? "What there is of truth in the one dogma, we accept, as well as what there is in the other"! Let us see if there is truth in Dr. Harvey's statement, and if it is true that his school recognises any healing virtue of a remedy applied according to the law of simlia similibus curantur. As to the *Lancet* the phrase that "nine-tenths of medical men regard homœopathy as downright nonsense can again be read in that very Editorial, which according to Dr. Harvey's statement, speaks to the same purpose."

The *Medical Times and Gazette* speaks more reasonably. "If diarrhœa be caused by retained fœculent matter, it may be cured by a purgative which sweeps away the cause." That is the only concession the *Med. Times and Gaz.* can make to the dogma of similars; (properly speaking this is acting on the principle of *tolle causam*, etc.) "but we cannot predicate of any purgative, that it

will in any dose cure any diarrhœa by virtue of any general law." Does this not look as if the heroes of Old or New-old Physic had one language for themselves and another for the public?

Our future historian feels tired of all the intricacies, contradictions and contortions of words and thoughts he had to pass, and we drop the pen.

REVIEW.

The Indian Annals of Medical Science. No. XXV. Barham, Hill, & Co., Calcutta, Published January, 1869.

Scientific periodicals, as a rule, have a sort of right to claim, by the nature of their appearance, a particular indulgence from the reviewer. For while a scientific work or pamphlet is, as a matter of course, bound to contain materials useful to the reading world, periodicals seem to be totally exempt from any shew of reason, why and how they have come to appear. The necessity of their appearance lies in the periodicity of time, and whether they come to us, richly or poorly equipped, it is incumbent upon us to welcome them heartily, as offsprings of that rich family of literature, which has proved one of the readiest promoters of the cultivation and progress of Science and Art.

These remarks involuntarily presented themselves to us, on perusing the contents of the twenty-fifth number of the *Indian Annals of Medical Science,* in which an article on "Humanity in War" is seen taking a disproportionally large share of the volume, and we confess we had to reproduce the same remarks, after having done with the above article. Humanity in war is, no doubt, a nice thing, a very nice thing indeed. The subject is moreover treated skilfully, and does the greatest honour to its author, as—an author. But since we cannot have all nice things or all cleverly written articles in Annals of Medical Science we ought, according to the good, old custom, be served with reading materials which interest the medical reader as such. "Humanity in War", would have adorned the pages of many a London Magazine; in Annals of Medical Science it only creates a feeling of disappointment on the part of him, who has to go through a war of 160 pages.

There are two articles about intermittent and remittent fevers; in the first we have a report on the therapeutical value of the cinchona alkaloids. As the sphere of action of these alkaloids has been already treated of in a previous number of this Journal, we shall restrict ourselves for the present to merely adding, that in reality, the administration of cinchona and its alkaloids in intermittent fever cases, is by far not so satisfactory in practice as they look on paper. Hospital experience is often delusive, in spite of the most vigilant and exact records, the patient being dismissed cured, while he has not long afterwards to repair to the same or to another hospital, where he will be admitted as a new comer, and perhaps dismissed anew, after a short stay, as cured, without being radically so. Private practitioners who have the opportunity of being applied to by one and the same individual for a length of time, know best how far the antifebrile action of cinchona and its alkaloids go. Our observations agree with those of Dr. Wood, who writes, "Antiperiodic treatment is in its nature essentially temporary; its only effect being to guard the system against the recurring paroxysms, not to secure further immunity, when its direct influence has ceased." "In recent uncomplicated agues," writes Dr. Hughes in his Pharmaco-dynamics, "shewing the the regular series of chill, heat and sweat, quinine is pretty well infallible, but in cases of long standing, its use is mere waste of time. If it *breaks up* the paroxysms for a while, they return; and if the quinine is pushed, a medical cachexia is added to that already induced by the disease."—Daily experience records well nigh the same thing in the journals of every medical practitioner.

From a note annexed to the above mentioned report we learn that the testing of the physiological effects being of secondary importance has been unavoidably postponed, until it has been ascertained whether any means can be employed to detect them in the secretions or excretions. We must confess, we do not consider such physiological testings of secondary importance, and if Medicine ever boasts of being a science, her tools and instruments (drugs) ought to be known to the practitioner. From the report itself we shall see at once that the knowledge of the physiological effects of drugs must be something more than of secondary importance, since we read, that "it was the severity of many of the cases, *coupled with the uncertainty as to the action of the*

alkaloids, that induced me to have recourse to large dose." Why not rather begin with small doses and proceed to larger ones on account of that very uncertainty?

In another article about the same subject the writer tells us—"My substantive appointment for the past sixteen months has been the medical charge of a Native Infantry Regiment stationed in Mooltan. The duties being light, allowing plenty of time to pay attention to individual cases; and the majority of patients being admitted into the hospital with fever, I became tired of ordering 'panch grain quinine tin dafa roz roz,' and thought I might vary the monotony of my daily visits, and be induced to take more interest in my work if I tried some of those other remedies which I had seen mentioned in the medical papers, as being efficacious in the treatment of intermittents."

Narcotine, we hear—not to our great astonishment—has failed in all cases; strychnine has been found useful as a tonic in convalescence from fever; when it has been prescribed with the view to arrest fever, it has not done so. Arsenic was tried in eleven cases; but in only one of them, it was supposed to arrest the fever,—we should have liked to see that "only one case" exactly described, in order to benefit by the clinical experiment of the author. As it is now, we are just as wise with regard to the conditions which would commend the exhibition of arsenic in intermittents, as we have been before.

We must confess, the whole statement as it lies before us has painfully affected us. Here is a medical man in charge of a hospital; the majority of the patients are admitted with fever. This annoys him. Quinine acts satisfactorily, but there is too much monotony in his daily visits, and he subjects his patients to trials, gives them arsenic, retarding so a cure, he could have (at least according to his experience) satisfactorily effected by a stroke of his pen, makes them vomit, and so on—and all this, to introduce some change in the monotony of his medical life! Leaving aside the fact, that the manner of instituting these trials lack—in so far as we can judge from the paper in question—that acuteness and exactness of observation, by which alone, anything like a scientific result of a useful character can be attained; we would venture to ask: Is it right to subject a human being, without his knowledge, at least, against his will, to any sort

of trials, even if it were strictly and solely for the benefit of science? Otherwise it would have been, had the ordinary remedies been applied and failed; but to willfully discard the most appropriate remedies, without any other reason than to learn something at the cost of the sufferer, is an act which surpasses our sphere of conscience. A soldier who goes to the hospital, has a right to look upon his doctor, as upon the man who *will* do his best for him. And that very man, instead of making his patient a subject of care, transforms him into a subject of experiments!

We have got to read a long stretched article on "Humanity in War" in the *Annals of Medical Science*; we should not be surprised if some day or other, we come to read in some Military and Navy Gazette a somewhat similar paper, on—"Humanity in Medicine."

From para. 7 of the above report we learn "that Sulphite of Soda and similar remedies have been used, with the view of destroying the spores of a fungus, which are supposed by some to be the cause of these fevers. The interesting fact recently communicated by Assistant Surgeon White in Assam, that the natives living in the vicinity of the petroleum springs there, are comparatively free from fever while those living beyond their influence, suffer severely, lends support to the above theory as to the cause of malarial fever." In looking however after the cases so treated, we learn, that out of eleven only one has been cured. Why not apply petroleum, as indicated, according to Surgeon White's statement, by Nature—is more than we can comprehend.

The article on Hydrophobia by Dr. Moore contains within a short space all that is worthy of knowing about that dreadful malady. The symptoms are clearly enumerated; the treatment—we are told—is uncertain. Iron, arsenic, nitrate of silver, camphor, musk, cantharidis, turpentine, tobacco, lead, strychnine etc., have been vainly tried. That cantharidis could ever have been thought worth trying in cases of hydrophobia, sounds strange indeed, since aversion to liquids is a pretty constant symptom produced by cantharidis. Unless we admit it has been tried on the homœopathic principle; but then it could not do otherwise than fail, or severely aggravate the victim's case, when given in large doses.

All is well that ends well, and so we had reserved to the last the

paper from Baboo Oody Chand Dutt on Sanscrit Materia Medica. The tendency of his paper can be best understood from his own words.

"The object of this short paper is, to direct attention to the simple indigenous drugs, in the hope that their study may lead to some useful practical results. The progress of European medical science, and the consequent disparagement of native medicine, will, in a few years, lead to extinction of the race of educated *Koberajs* or native physicians. At the present day, a few survivers of the old school are met with, who practise their art with profit to themselves and benefit to their patients. When these veterans will have departed, their knowledge will be practically lost to society, as now-a-days there are very few competent students in native medicine. No one will regret the extinction of Hindu pathology, as it is found on a radically incorrect basis, but the vast amount of empirical knowledge regarding the action and uses of medicines acquired by generations of native practitioners cannot be afforded to be lost without regret. It is notorious that native physicians sometimes cure very complicated and serious cases of illness, and that they possess a number of remedies of great service in particular cases. Hence it is very desirable that the records of Hindu therapeutics should be fairly examined, and any useful knowledge therein contained be rescued from oblivion."

In all this we heartily concur with the author. From a note we learn that the Baboo has compiled an alphabetical list of the simplest remedies, described in native medical works, with their synonyms in vernacular and English, their action and uses. Should sufficient encouragement be offered, an entire list of them would be published. We hope encouragement will not be found wanting by our professional brethren.

—oooo—

Gleanings from Contemporary Literature.

On the Action of the Salts of Iron when introduced directly into the Blood.

By James Blake, M. D., F. R. C. S., San Francisco, California.

Some years ago I performed a series of experiments to ascertain the effects produced on living animals by the introduction of inorganic compounds directly into the blood; and although the results arrived at were I think interesting as pointing out the existence of a new law governing the reactions between living elements and inorganic compounds, these results have, I believe, remained unnoticed by physiologists up to the present time.

It is not my intention at present to enter fully on the subject, but I would state that after a series of observations made with compounds of twenty-nine of the elementary bodies, and involving some hundreds of experiments on living animals, the result arrived at was, that these inorganic compounds when introduced directly into the blood, give rise to reac-

tions connected with their isomorphous relations, or that isomorphous substances produce analogous reactions. This law was verified as regards all the more important isomorphous groups, including compounds; in the magnesian group, of iron, zinc, manganese, copper, cadmium, lime and magnesia; in the platinum group, of platinum, palladium osmium and iridium; in the arsenic group, of arsenic, antimony and phosphorus; in the chlorine group, of chlorine, bromine and iodine; in the potassium group, of potassa, ammonia, soda and silver; in the baryta group, of baryta, strontia and lead; in the alumina group, of alumina, ferric oxide and glucina; in the sulphur group, of sulphur and selenium. Some of these experiments were published in the proceedings of the British Association for the Advancement of Science, about 1844 to 1848, and a resumé in the American Journal of Medical Science for January, 1848.*

The experiments I now have to bring forward were performed with the salts of iron. The fact that this metal forms oxides, the salts of which are widely different in their isomorphous relations renders the investigation of its action in connection with the above law of considerable importance, and the part that this metal plays in the physiology of the blood, adds a still greater interest to any facts connected with its reactions.

Ex. 1. A tube was introduced into the jugular vein of a strong healthy dog weighing about 20 lbs. A hæmadynamometer was connected with the femoral artery—pressure in the arteries from 4 to 6 inches, heart's action regular; 10 grains of sulphate of iron dissolved in ½oz. of water was injected into the jugular vein, in 12″ the heart was affected, its pulsations rendered weaker, and the arterial pressure became diminished; at 30″ it had fallen to 2 inches, oscillations only 0·2 in. The pressure in the arteries soon again rose, at 1′. 30″ it was at 4 in., oscillations slight. The animal did not appear to suffer any pain, the respiration and heart's action slower; at 5′ after the injection the pressure in the arteries had again reached its natural level, although the pulse oscillations was not so great; respiration and heart's action normal.

Fifteen grains of the salt in the same quantity of water was again injected into the vein; in 13″ the pressure in the arteries had fallen to 3 in., in 15″ to 1 in.; it then began to rise, so that at 30″ after the injection it was 3 in., respiration slower but regular; at 1′. 30″ the pressure in the arteries was up to 5 in., heart's action regular, vomiting at 2 min., at 5 min. pressure 5 in., oscillations slight.

Inject 28 grs. In 13″ heart's action stopped, the pressure fell rapidly to zero, nor were any more pulse oscillations observed, respiratory movements continued and efforts to vomit took place 2 min. after the heart had stopped; the animal was then dead. The thorax was immediately opened. The right auricle was found pulsating, the right cavities were much distended with dark fluid blood, the left contained about 1 oz. of blood, brighter than that in the right cavities, but still not of a bright scarlet; it was quite fluid. The heart was slightly irritable after the blood had been let out. The blood did not coagulate, no clot having been formed after it had stood 48 hours.†

Ex. 2. In order to ascertain more accurately the general effects produced by the introduction of the sulphate of iron into the blood, a tube was inserted into the jugular vein, and immediately on the injection being made the animal was set at liberty.

* The only marked exception to this law was found in the potassa group, the salts of potassa differing from those of ammonia in their action on the nervous system, and also from the salts of silver and soda in their action on the heart, and on the pulmonary circulation.

† The absence of or imperfect coagulability in the blood is found after the injection of the salts of zinc, nickel, cobalt and copper, in fact of all the metallic salts of the magnesian family.

The animal was a strong healthy dog weighing about 20 lbs.

Ten grains of sulphate of iron dissolved in half an ounce of water was injected into the jugular. The animal showed no sign of suffering, but after a few minutes appeared rather dull; 15 grs. in the same quantity of water was injected, in a few seconds the respiration appeared disturbed, the animal was dull and not inclined to move, but there was no expression of pain.

After a few minutes 20 grs. was injected—no expression of pain; after three minutes vomiting, and the animal was dull and listless. After an interval of ten minutes, 25 grs. of the salt dissolved in six drachms of water was injected. In 15″ the animal fell down, and in 48″ respiratory movements had ceased and the animal lay to all appearance dead; no pulsations of the heart could be felt. After it had remained about a minute in this state, respiratory movements again commenced and the heart could be felt beating. The animal gradually recovered, and soon regained consciousness. It did not appear to suffer, but lay on the side perfectly sensible and wagged its tail when caressed. After about a quarter of an hour it could stand and even walk about when lifted on its legs, although 70 grs. of sulphate of iron dissolved in about 2 oz. of water had been introduced into the blood in twenty minutes. The animal was killed by injecting a solution containing 40 grs. of the salt into the veins—in a few seconds the heart was stopped. On opening the thorax, the appearances presented were the same as in the last experiment. The blood remained fluid.

Ex. 3. In order to ascertain the effect of the salt on the passage of the blood through the systemic capillaries, a tube was inserted into the axillary artery of a dog, the point looking towards the heart. The hæmadynamometer was connected with the femoral artery. On injecting a solution containing 15 grs. of the salt through the axillary artery into the aorta, there was a slight general spasm. In a few seconds the animal was quiet; and the pressure in the arteries 30″ after the injection was about half an inch less than before. On injecting a stronger solution the respiration was suspended, and the heart stopped by asphyxia.

The following experiments have been performed with the sulphate of the peroxide of iron, the general conditions being the same as in the former experiments:—

Ex. 4. Two grains of the salt dissolved in 2 oz. of water was injected into the jugular vein of a strong healthy dog weighing about 20 lbs. Twelve seconds after the injection the pressure in the arteries, which before the injection was at 5-6 inches, began to diminish rapidly: at 45″ it was only 1½ inches, although the heart was felt beating and slight oscillations caused by its action were noticed; 2 min. after the injection the pressure in arteries began to rise, and in another minute it was up to 6 inches, action of the heart regular, respiratory movements rather laboured; the animal apparently not much affected.

After an interval of fifteen minutes, 3 grs. of the salt in 2 oz. of water was injected into the vein. In 12″ the pressure began to diminish, and in 45″ it was nearly at zero, although oscillations caused by the action of the heart and violent respiratory efforts still took place. At 45″ the respiration became much affected and there were violent struggles. At 3 min. the respiration stopped; and at 3′ 30″ the animal was dead. Convulsive movements of the diaphragm continued for 2″. At 4 min. after the injection the thorax was opened. The left auricle and ventricle were found still contracting; the right cavities were so distended with blood that they would not contract; but on letting out the blood rhythmical contractions again took place. There was a small quantity of scarlet blood in the left cavities, which coagulated. The blood from the right side was dark, and

coagulated firmly after it had been let out. The lungs were of a bright scarlet colour and very much contracted. There can be no doubt but that in this experiment death was caused by the blood containing the salt causing contraction of the pulmonary capillaries, so that no blood reached the left side of the heart.

Ex. 5. In order to ascertain if the presence of the salt in the blood caused contraction of the systemic capillaries or arteries, tubes were introduced as in Ex. 3. The pressure before the injection was 6-7 inches. A solution containing ½ grs. of the salt in 2 oz. of water was injected through the axillary artery; in 4″ after the injection the pressure in the arteries began to rise, and in 45″ it was equal to 12 inches of mercury; heart's action much quickened, oscillations slight; respiratory movements ceased at 1,′ but the action of the heart seemed unaffected. The respiratory movements remained suspended for 1′ 30,″ the animal being to all appearance dead, but the pressure in the arteries still kept up to 12 inches. After being suspended for 1′ 30″ respiration again commenced, it was slow (10 in a minute) but regular and not laboured. At 3′ 30″ after the injection, the pressure in the arteries had fallen to 10 inches; the heart's action slower. At 4′ 30″ heart stopped for 5″ and then recommenced beating, the pressure rising from 7 to 10 inches. At 5′ 30″ heart's action slower, pressure diminishing. At 8′ pressure still 10 inches, the animal to all appearance dead, with the exception of the respiratory movements, which were slow and regular. At 9′ respiration ceased, and the pressure fell rapidly, although the heart continued beating. On opening the thorax, the heart was found contracting. Both cavities contained dark blood, which coagulated firmly. These experiments will suffice to show the marked difference there is between the action of the proto- and persalts of iron, when introduced directly into the blood; for whilst large quantities (as much as forty or fifty grains) of the former can be mixed with the blood without affecting its passage either through the systemic or pulmonary capillaries, two or three grains of the persalt is enough to arrest the passage of the blood through the capillaries of the lungs, or to cause such a contraction in the systemic capillaries or smaller arteries as to require a pressure equal to 12 inches of mercury to overcome the resistance.*

The quantity of the different salts required to produce death is extremely different, for whilst 60 to 70 grs. of the protosalt can be circulating in the blood without producing any fatal symptoms, four or five grains of the persalt will destroy life.†

As regards the action of the salts of iron on the heart, the protosalts evidently tend to diminish its irritability, as the pulsations become slower and the pressure in the arteries diminishes. In larger doses, the action of the heart is arrested. The persalts on the other hand appear not to exert any direct action on the heart; they certainly do not diminish the strength of its

* It might be that this obstruction to the circulation is caused by a physical change produced in the blood, rather than by contraction of the vessels themselves; but I am inclined to think that the quantity of the salt required is too small to cause any marked physical change in the blood; besides the same effect is produced by substances which have no physical effect on the blood. An infusion of digitalis will cause quite as great an obstacle to the passage of the blood through the capillaries, and yet it does not give rise to any recognizable physical change in the blood. The known hæmastatic properties of the persalts of iron and of digitalis are probably connected with this action on the blood vessels.

† The poisonous properties of the persalts of iron should lead to caution in their employment. I have seen deaths recorded after the use of these salts for the destruction of nævi in which I have no doubt the hæmadynamometer would have showed obstruction in the pulmonary circulation. In the *Berlin Allgemeine Med. Cent. Zeitung* for January 11th, 1868, a death is recorded in which the symptoms plainly indicate fatal pulmonary obstruction.

contractions or it would not go on beating under the enormous pressure to which its internal surface must be submitted, when the arterial pressure is equal to 12 inches of mercury.

The action of the protosalts on the nervous system shows itself in slower respiration, a peculiar state of quietness, in which the animal does not wish to move, although it has the power and is perfectly sensible, and by inducing vomiting. When introduced directly into the arteries, death is caused by its action on the nervous system. It is probable that the general effects produced by the persalts are owing to the important changes caused in the circulation. On first injecting it into the veins, the pulmonary circulation is arrested and venous congestion results: the supply of blood to the left side of the heart being cut off, the circulation of arterial blood through the body is almost suspended. When injected directly into the arteries the curious nervous phenomena that result are probably owing to the great pressure to which the nervous centres are submitted, and which appears to abolish entirely the functions of the encephalon, although respiration and heart-pulsation are kept up for some minutes. As to the cause of the final cessation of the respiratory movements, I am inclined to think that it is owing to the effect of continued pressure producing some state of the nervous tissue which interferes with its reflexibility and not owing to any chemical changes caused by the presence of the salt in the blood. In the more appreciable physical changes produced in the blood the two classes of salts are as different in their action as in every other respect. The protosalts give rise to changes in the blood which prevent its coagulation after death, whilst the salts of the peroxide do not at all interfere with its coagulation, but I believe render the clot firmer. Such are the more striking facts caused by the introduction of the ferrous and ferric salts directly into the blood. The difference in the physiological reactions produced by two classes of salts of the same metal is in itself a curious fact, but it becomes I think far more interesting when we find that these two classes of salts of the same metal, differing so strongly in their physiological action, yet have their strict physiological analogues in salts of other metals very different from iron. Thus the substances which when introduced directly into the blood produce effects analogous to the protosalts of iron, are the salts of magnesia, zinc, nickel, copper and cadmium; whilst the salts that are analogous to the ferric salts in their physiological action are the salts of alumina and glucina. On the important bearing of these facts on the question of isomorphism and physiological reactions it is needless to enlarge. As regards the chemistry of respiration, the above experiments would show that the salts of the protoxide of iron, although so readily passing to a higher degree of oxidation when out of the body, are in some way preserved from the action of oxygen when mixed with the blood. Were not this the case a sufficient quantity of the persalt to prove fatal would soon be formed when fifty to seventy grains of the sulphate had been introduced into the blood. On the other hand it would seem that the salts of the peroxide cannot be rapidly reduced whilst circulating with the blood, otherwise the effects of the small quantities used in some of my experiments would not have been so persistent.—*Journal of Anatomy and Physiology, Nov.*, 1868.

THE

CALCUTTA JOURNAL

OF

MEDICINE.

VOL. II.] **April, 1869.** [NO. 4.

A SKETCH OF THE TREATMENT OF CHOLERA.

(Continued from the last No., p. 97.)

The drugs that we have pointed out as useful in the stage of full development of the disease, are those ordinarily used. There are others whose pathogeneses point to their probable utility as remedies of this stage. These are *jatropha curcas, tabacum, antimonium tartaricum, elaterium, mercurius dulcis* (calomel), *mercurius corrosivus, croton tiglium, iris versicolor.* The following are their indications :—

Jatropha, when there is *easy* vomiting of a large quantity of watery substance resembling the white of an egg, and diarrhœa (as if the contents of the rectum would gush out like a torrent), accompanied by anxiety with burning at the stomach, anguish, coldness of the body, viscid sweat, violent cramp-pains in the lower limbs to such an extent that the calves look flat like splints.

Tabacum : The most prominent symptoms produced by this drug, however introduced, whether by the mouth or even applied externally, are nausea and vomiting. It is therefore likely to be useful in those cases in which, after the purging having yielded to other drugs, the nausea and vomiting become persistent, recurring in constant paroxysms, being at times more violent, and

when there are also cold sweat, oppression at the stomach, some anguish and restlessness, cramp and tearing in the limbs, occasional clawing in the calves. The characteristic of the tabacum nausea and vomiting is that they are aggravated on the slightest movement; also the vomiting occurs sometimes in a stream.

Antimonium Tartaricum (tartar emetic): The pathogenesis of this drug points it out as likely to be very useful in cholera, especially in the gastro-enteric variety. Tartar emetic would seem to be particularly indicated in those cases in which an alternation of vomiting and purging takes place; that is, on the cessation or amelioration of the vomiting, the purging becomes aggravated, and *vice versa*. We believe tartar emetic would, if tried, be found to rank next to arsenic as an anti-choleraic remedy. In mild and sporadic cases we should prefer it to arsenic. As a general rule arsenic should be used in cases where the tendency is obviously to death; tartarized antimony in those in which the chances of recovery would seem to be greater.*

Elaterium: Dr. Chambers thus describes the physiological action of this drug:—"It causes an enormous flow of watery serum from the first mucous membrane that absorbs it. If its vapor be drawn up into the nostrils for a short time, it is a powerful errhine, and is followed by the secretion of floods of water from the Schneiderian membrane; if it is dissolved in the œsophagus it causes such a deluge of the gastric fluids, that the stomach cannot contain them, and they are rejected by vomiting; if it succeed in passing the pylorous, a choleraic diarrhœa gushes forth, stripping the mucous membrane of its epithelium just like its morbid prototype." From this Dr. Hughes rightly infers: "Elaterium would thus seem homœopathic to choleraic diarrhœa and vomiting. There is this difference, that the prolonged action of elaterium sets up gastro-enteritis, which the cholera poison never

* "One of the remarkable characters of the acute form (of antimonial poisoning) is that, in spite of the violence and severity of the symptoms, even when the collapse and depression appear to indicate impending dissolution, there is an astonishing power of recovery. When one large dose is only administered, the case proceeds to recovery or death, generally the former, if the case is placed early under treatment. In this respect, acute antimonial is distinguished from acute arsenical poisoning. In the latter, in spite of early treatment, and the removal of the whole or greater part of the poison from the stomach, the case frequently terminates fatally." Taylor, *On Poisons*, 2nd Ed., pp. 537-8.

does." He recommends its trial in cases in which the excessive *quantity* of evacuations is especially noticeable.

Croton tiglium: Among the pathogenetic symptoms of this drug we have as especially characteristic:—Violent vomiting of the ingesta after previous violent nausea; sudden, violent, repeated attacks of vomiting of a yellowish white frothy fluid occasioning the most violent efforts of the stomach; anguish, oppression, and pressure in the region of the stomach, with great nausea and accumulation of water in the mouth; violent burning in the stomach; numerous liquid evacuations with tenesmus, without colic, or with nausea and colic; liquid diarrhœaic stools, resembling yellow-colored water, and coming out like a shot; violent purging, with a disagreeable sensation through the whole body, and a nauseous taste; sweat during stool. In addition to these we have weakness and sick feeling; fainting spells. "The purgation produced by croton," observes Dr. Hughes, "seems not the result of inflammatory irritation, but rather of such a transudation of the watery part of the blood as is caused by elaterium and veratrum album, and obtains in Asiatic cholera. The accompanying symptoms in severe cases are strikingly choleraic in character: and croton might fairly take rank among the remedies for *choleraic diarrhœa.*"

Mercurius Corrosivus: Pathogenetically the difference between arsenic and corrosive sublimate is that the latter produces symptoms much more rapidly, and its action upon the alimentary canal, especially upon the colon, is more of an inflammatory nature. Dr. Taylor has well observed that "the symptoms produced by corrosive sublimate, in the first instance, resemble those of cholera; if the person should survive several days, they in some respects assume the character of dysentery." Corrosive sublimate is one of the most, if not the most, approved remedies in dysentery. And we are of opinion it is likely to be of use in cholera, especially in those cases in which the stools are mixed with blood, or in cases in which choleraic symptoms have developed after an attack of dysentery. Suppression of urine is a predominant symptom of corrosive sublimate.

Mercurius dulcis or Calomel: This is by far a milder preparation of mercury than corrosive sublimate. It is very exten-

sively used and chiefly relied upon by the Old School in the treatment of cholera. This drug must have been originally proposed on the ground of its influencing the liver, in cholera the function of that organ being supposed to be paralysed. Recent experiments, having shown that calomel, in repeated doses, produces rather a-bilious than bilious stools, have proved quite a puzzle to the members of the Old School who are in the habit of using the drug for the purpose of promoting the biliary secretion. To homœopaths who are familiar with the double action of drugs, the puzzle is quite easy of explanation. Indeed, in this fact we see one reason of the success of calomel in cholera. Calomel is in so far homœopathic to the disease that it can produce a-bilious diarrhœaic stools. The use of calomel, however, in cholera is not so much its homœopathicity to the disease as its defibrinating or liquifying influence upon the blood. In the algide stage one of the great dangers is from coagulation of the blood in the pulmonary vessels and in the chambers of the heart, as evidenced by distressing dyspnœa and pallor of the countenance. Such a state of things is capable of being prevented by the timely exhibition of calomel in appreciable doses. We shall recur to it when we come to treat of the collapse.

Iris Versicolor: This agent is much talked of by American physicians as a remedy for cholera. We do not believe however it can be of any use in the genuine disease. The following observations of Dr. Hughes are important to notice:—"Iris is known in America as a very active emetic and purgative, and as an excitant of the salivary and biliary secretions. Our provings, while they agree with this description, both enlarge and precisionise it. Enlarge,—for they show that the *pancreas* is irritated as much as or more than the salivary glands and liver. This is shown by the continual burning felt in this region by one of the provers, who at the same time was passing frequent watery evacuations; and by the highly congested state of the organ in animals poisoned by iris. And precisionise,—for they indicate the vomiting and diarrhœa of iris to be the result of hypersecretion along the alimentary tract, and that the morbid condition set is up has little tendency to run on to inflammation.

"In these last words I have described pretty closely the pathological condition which obtains in what we call *English cholera*,

which, however, I suppose exists in all parts of the globe. The acute vomiting and purging, predominantly bilious, which characterise this autumnal scourge, are checked in the promptest manner by iris."

We have said nothing of the allopathic treatment of this stage, as we believe there is, properly speaking, none. The exhibition of astringents in this stage we would condemn as worse than useless. Very seldom they succeed in checking the evacuations, and when they do, they give rise to fatal tympanites. Opium in this stage is a deadly poison. While it fails to exert any influence upon the exudation of serum from the alimentary mucous membrane, it never fails to seriously affect the cerebral organs. Stimulants may do some good, but if the good is not manifest after a few doses, a blind, persistent use of them is sure to be followed by positive mischief, which may be either in the shape of the development or aggravation of the irritability of the stomach, or in that of cerebral congestion. The only drug employed by the old school which may be of any use, for reasons stated above, in this stage, is calomel.

III.—The algide stage, or the stage of collapse, is the most dangerous of all. The greatest number of deaths in cholera takes place in this stage. It is much easier to say when this stage ends, which is either in reaction or death, than when it begins. Yet for the successful treatment of this stage it is necessary to have an accurate idea of its commencement; and for this again it is necessary to have a true conception of collapse and of the causes of collapse in cholera. Collapse is a falling in, a sinking, or depression, of the vital energies, only short of, but verging towards, actual dissolution. In this condition of the system there is a total suspension of functions of all the assimilating organs; and very nearly the same of organs the most essential to the economy, such as the heart and the lungs, or of their governing nerve-centres. The heart continues to beat, and either it does not do so strongly enough to propel the blood through the capillaries, or there is not blood in sufficient quantity, or of proper consistency, to be propelled. The lungs continue to expand and contract, but the blood is not duly or at all oxygenated.

This stage may be said to be chiefly characterized by negative symptoms. Vitality is at the lowest ebb. The pulse has retired from the wrist, and sometimes is not to be perceived in the brachial, and even not in the axillary artery. The respiration is either simply slow, or as is more frequently the case, hurried and labored, or sobbing—being quiet at times, and at times heaving. It becomes more and more difficult as collapse advances. All this is indicative of stagnation in the vessels of the lungs. In place of the natural warmth we have icy, clammy coldness; and in place of the hue of health we have a deadly pallor or livid or bluish tinge of the surface. The countenance has become pinched and ghastly; the extremities, especially the fingers and toes, palms and soles, look as if they have been long soaked in water. The eyes have sunk deep in their sockets, and become congested and lustreless. The voice is nil or has been reduced to a whisper. The restlessness of the second stage has given place to almost total insensibility to suffering. The senses have become dull, and the mind indifferent. Even the demand, which was so incessant in the stage of full development, for cold water to quench the burning thirst, and for cool air to allay the sensation of burning heat in the surface, becomes less, and finally almost ceases. In this stage the cramps have either altogether ceased, or appear at considerably long intervals when the patients shriek out in agony. The evacuations are altogether stopped, or are small in quantity and passed involuntarily.

The remedies useful in this stage are generally those useful in the stage of full development. But in addition we have others which are of signal service. Altogether we have to consider the following remedies:—*Camphor, aconitum, veratrum, arsenicum, cuprum, secale, carbo veg., hydrocyanic acid, cobra* or *lachesis, ammonia, alcohol, ether.*

In the treatment of collapse, the treatment of the previous stages must be borne in mind. It would be useless to employ remedies which have been already employed, and in spite of whose employment the collapse has set in. If however they have not been exhibited, they deserve a trial.

The indications of *camphor* and *aconitum* might be gathered from what has been already advanced regarding these drugs in the previous number.

Camphor might be useful in the collapse succeeding the stage of full development, provided no medicine had been taken previously, or provided too much of other medicines has been taken and in massive doses. In this latter circumstance it acts more as an antidote than otherwise.

Aconitum, as may be seen from its pathogenesis, is an excellent remedy for the syncopal variety of collapse, in which we have gradual failure of the heart.

Veratrum may be employed in sudden collapse, or in collapse which has resulted from excessive evacuations, provided of course it has not been already employed. The same remark applies to *arsenicum*, *cuprum*, and *secale*. We employ *arsenicum*, when the collapse is out of proportion to the evacuations, when there is much tossing in bed, and when burning is complained of in the skin as well as in the stomach. We employ *cuprum* or *secale* when we have reason to believe the collapse has resulted from the violence of the cramps, or when cramps are still the prevailing condition, or when we fear death might result from sudden asphyxia or sudden syncope, as the effect of spasm of the diaphragm, of the pectoral muscles, or of the heart. The differential indications are to be gathered from what has been said before.

Carbo vegetabilis: Such authorities as Teste, Russel, and Hughes* altogether question the usefulness of this drug in the collapse of cholera. Our experience, however, has been eminently in its favor. In cases where the collapse has gradually taken place, especially after the employment of the ordinary remedies, such as veratrum, arsenic, &c., *carbo* acts admirably as a general stimulant. The pulse rises, heat returns to the tongue and the surface, the voice improves, the eyes regain their lustre and the patient gradually shakes off his dulness and apathy. *Carbo* is especially useful when there is tympanitic distension

* "I am disposed to think that it (carbo) is abused in epidemic cholera, for which some homœopaths consider it a specific remedy."—Teste, *Materia Medica*, p. 249.

"*Carbo Vegetabilis* is said to have been useful in cases of great collapse, but for our part we cannot say we have any great faith in its efficacy in such a disease as cholera. We have tried it occasionally, but without obtaining any results."—Russel, *Epidemic Cholera*, p. 261.

"I cannot agree with those who see in Carbo adynamia in the collapse of cholera."—Hughes, *Pharmacodynamics*, p. 201.

of the abdomen and when the stools have become fœtid. *Carbo* may be employed in alternation with *veratrum* or *arsenicum*, in cases where the characteristic discharges of these drugs are going on, provided of course they have not been previously used, or not sufficiently used.

Acidum hydrocyanicum is useful, in fact, is the only remedy when along with pulselessness, cold clammy perspiration, involuntary evacuations, staring fixed look, dilated pupils, the respiration is slow, deep, gasping or difficult and spasmodic, taking place at long intervals, the patient appearing dead in the intermediate time. If any remedy is entitled to being spoken of as acting like a charm, it is hydrocyanic acid. It would at times seem to restore animation to a corpse. Apparently dead, and humanly speaking, beyond all hopes of recovery, the patient revives under its influence, quite to the surprise of those around, and even of the physician. The quack nostrum *chlorodyne* owes its occasional charming but more often its deleterious effects in cholera to this agent, which is one of its constant ingredients. We cannot help taking this opportunity to remark how perversely prejudiced orthodox physicians prove themselves to be when they do not hesitate to use drugs of which the composition they cannot pretend to accurately know, whereas they refuse to use drugs which have been tried in the crucible of the healthy human constitution.

Cobra: Death takes place, in cobra-bites, more generally from asphyxia, that is, from paralysis of the nervous centre governing respiration, than from syncope. In one of our experiments we found the heart was beating after the respiration had stopped for some time, and when the animal appeared to us, to all intents and purposes, to be quite dead, and which in fact led us to lay him open. Cobra again seems to produce or favor coagulation of the blood in the vessels, even in the arteries. We were guided to cobra in the treatment of the collapse of cholera by the light of these facts, and in the few cases we have tried it (6th dil., globules) we have found it eminently successful. *Cobra* would seem to fulfil our most sanguine expectations in cases threatened with imminent dissolution from asphyxia, resulting either from extreme nervous exhaustion, or even from embolism of the pulmonary vessels, indicated by great dyspnœa and the most distressing struggle for breath which the cholera-patient in this stage not

unfrequently manifests. We would deem *cobra* to be especially indicated after *arsenicum* has been exhibited frequently without benefit, or perhaps to the extent of producing this mischief. *Cobra* seems to be very nearly an analogue of *hydrocyanic acid*, and acts almost as rapidly and as charmingly.

Lachesis: We have no experience with this drug. But from its general neurotic and hæmatic action being analogous with those of the *cobra*, and the neurotic action in both the drugs predominating over the hæmatic, we are inclined to believe that *lachesis* will be equally useful in the particular condition in which *cobra* is. We would prefer the latter when despondency and fear of impending dissolution constitute the mental condition of the patient; the characteristic psychical state of *lachesis* being rather excitation than depression.

Ammonia, alcohol, ether. In recommending the employment of these agents in the treatment of the collapse of cholera, we might be thought guilty of advocating allopathy under the garb of homœopathy. Our creed is before the profession, and we are fearless of urging the claims of any drug and in any dose, provided we are convinced of its tested or probable utility in the relief of suffering or saving of life. In the present case, however, we are persuaded that in prescribing ammonia, or alcohol in any shape, or ether, we are but acting on the principle of similars. The effect of a pretty heavy dose of any of these agents, is collapse, of the asphyxial or syncopal variety according to circumstances. And compared with the dose capable of producing this effect, the doses ordinarily prescribed for purposes of stimulation are minute, if not infinitesimal. It is not easy to give the differential indications of these drugs. Ammonia and ether are more diffusible and act much more rapidly than alcohol; and therefore are to be preferred when the collapse is more profound. Besides, ammonia and ether would seem to be more useful in asphyxial, and alcohol in syncopal, collapse. These drugs may well act in combination, provided the state of the stomach will permit. Generally the ammonia is less easily retained than ether or alcohol. But even this requires to be determined by actual trials. Sometimes the ammonia will be retained when ether or brandy will not. It is to be remembered that we recommend the administration of these

so-called diffusible stimulants after failure of the remedies mentioned before. We have sometimes found homœopathic remedies to act better after the system has been stimulated by them. We do not believe they invariably succeed in accomplishing this object. On the contrary they fail more often than succeed, and the best allopathic authorities have come to admit this. We would not therefore advise them to be pushed too far, to the extent of causing distressing irritability of the stomach when it has already ceased. Besides, even if the stomach be not rendered irritable, it is not safe to fill it with these powerful agents. "Nothing," says Dr. Edward Goodeve, "is more pernicious than the system of pouring large quantities of brandy into a pulseless patient in cholera. Sometimes when the irritability of the stomach has gone off, he will, in the course of two or three hours, swallow a large quantity of brandy, water, ether, ammonia, sago, wine, &c., and the friends perhaps congratulate themselves upon the quietness of the stomach, the pulse remaining absent nevertheless. In the course of time the patient grows uneasy, and presently vomits the whole accumulation, perhaps two or three pints. Such cases as these show the uselessness of overloading the stomach in the torpid condition in which the patient is in collapse, and what a reservoir of mischievous elements may be provided against the return of the circulation."*

Beyond the employment of ammonia, ether, and alcohol in various shapes, the old school has hardly any thing more to offer in the treatment of the collapse of cholera, unless, indeed, we except calomel. This drug, it has recently become quite a fashion, especially in India, to use frequently and in repeated doses, in all the stages of cholera. By some practitioners it is said to be attended with uniform success, by others it is looked upon as only falling short of a *catholicon*. And we are advised to push the drug, dose after dose, and consoled with the hope that improvement will ultimately result though none might be apparent, and though the disease might advance and the life of the patient be threatened. This we regard, have found and therefore must condemn, as not only mischievous but dangerous. The utility of calomel in cholera depends upon its specific action upon the portal system, combined with its peculiar, catalytic action upon the

* Russel Reynold's *System of Medicine*, Vol. i, p 79.

blood by virtue of which it prevents its coagulability. Hence it has to be exhibited in rather appreciable doses. But certainly it ought not to saturate the system to its utter and permanent ruin. Falling out of the teeth, cancrum oris, mercurial cachexia have not unfrequently been developed by the injudicious use of this drug in cholera.

When dyspnœa is great, when there would seem to be a sudden failure of the heart's action, or when cramps threaten to stop the machinery of life, the application of mustard poultices over the chest is resorted to with benefit, and should not be forgotten by the homœopathic physician.

IV.—The stage of Reaction commences with the return of the pulse at the wrist. With reaction the choleraic symptoms seem to develope anew, but in normal reaction this is only for a short time, and indicates but returning vitality. The purging and the vomiting soon assume a bilious character, the evacuations being yellowish or greenish. The stools gradually become more and more consistent; and the urine is secreted, and either voided or retained in the bladder as indicated by the fulness of the hypogastric region.

Reaction, however, is not always of this normal description. It may be imperfect, and soon fall back into collapse, as if the system had just enough vitality to react upon the disease or to respond to the stimulus of medicine, but not enough to resume and continue its functions. Or it may be abnormal, being followed by congestive, inflammatory, or typhoid condition; the whole system or particular organs, from an inherent weakness, being unable to recover thoroughly from the original shock of the disease or from its subsequent ravages, or, as is not unfrequently the case, being hampered by injudicious medication, take an abnormal action, and thus we have what are known as the sequelæ of cholera.

In normal reaction the chief treatment is dietetic, drugs being seldom necessary. The purging and vomiting being rather beneficial than otherwise, should not be checked. Should they however threaten to be violent or distressing, remedies must be addressed for their subsidence, and these are generally those useful in the second stage, only that they should be more sparingly used.

(To be continued.)

MIDWIFERY IN INDIA.

The state of midwifery is a pretty accurate measure of the progress of medicine amongst a people, and indirectly of its civilization, inasmuch as it gives us an insight into the position of woman. Judged by this standard, our ancient civilization, however we may be proud of it, was but the best of a crude stage, and the healing art, however we may think highly of it, as cultivated in ancient times in India, was but a step above the mere empirical. In the present day the state of midwifery is the most disgraceful imaginable. It is not practised by the regular indigenous practitioners. Strange that the birth of human beings and the nursing of the mother and child at the most critical periods of their existence should be made over to the tender mercies of ignorant women of the lowest class, and therefore necessarily the rudest and the most unfeeling. The strangeness disappears, however, when we look to the position of woman in our community. However we may boast of our imported education and enlightenment, however mortified or even angry we may feel at being taunted with still leading a semi-barbarous life, the fact is undeniable that we do not treat our women as we ought, that we treat them no better than as toys or slaves. We still inwardly regret and even fret when a baby is born in the family, we are still far from even entertaining the idea of equality of the sexes, and what is worse, we still show an amount of unconcern and indifference towards their mere physical wants and sufferings as to call for the severest censure from the conscientious physician. Females, especially widows, when they unfortunately become the victims of disease, hardly meet with any sympathy and attention unless or until the disease reaches a height when indifference is culpable in the extreme. The greatest cruelty is shown during confinement. At the time when the utmost possible care and attention is necessary, the parturient female is consigned to a place in the house having no hygienic recommendation whatever, and hardly better than a dungeon.

Under these circumstances a work on midwifery scientifically treated is most welcome. Baboo Unnada Charana Kastagiri has laid the females of our country under a deep obligation by the compilation of a work on midwifery in Bengali. The author very bitterly, in the preface, complains of the condition of our

women, and traces to this source the want of cultivation of the science of obstetrics, as will appear from the following free translation of the passage alluded to.

It breaks our heart to think of the degraded condition in which, from time out of memory, the females of Bengal have fallen. As beings deemed inferior to the stronger sex, and hardly above the beasts that perish, they are doomed to pass their whole existence in the performance of works which constitute but the lowest duties of life, such as cooking, &c.; and the same indifference and want of sympathy are shown towards them whenever unfortunately they become subject to the ills flesh is heir to; in *their* case means of alleviation are scarcely deemed necessary to be sought. Add to this general neglect of the weaker sex, the hatred and disgust with which the important function of parturition is universally looked upon, and we shall easily understand the reason why there is not one who is willing or anxious to investigate into the subject. And when we consider that an unfounded shame on the part of our females, and an absurd desire for extreme secrecy in the matter of confinement on the part of our males, act no less as obstacles to the pursuit of this branch of scientific study, need we wonder that this most difficult and responsible task should be placed entirely in the hands of the ignorant midwife? It is most lamentable to think how many parturient females, for want of timely and proper aid, are, with children in their wombs, falling into the grasp of death; how many children die before seeing the light, or are born only to die; and how many mothers, escaping for the time being from the effects of avoidable accidents or diseases, become afterwards bed-ridden for life!

We noticed the first part of this work in a previous number in terms of commendation, taking exception to the matter of treatment in so far as it was generally too antiphlogistic. This, the second part, treating of Midwifery proper, the first part having formed only an introduction to it) has been well executed, the compilation being pretty elaborate. The subjects treated of in this part are,—1. the nomenclature and classification of labor, 2. the mechanism of labor, 3. natural labor, 4. convalescence after parturition, 5. tedious labor, 6. powerless labor, 7. obstructed labor, 8. of labor in deformed pelves, 9. induction of premature labor, 10. version, 11. vectis, 12. forceps, 13. craniotomy, 14. hysterotomy, 15. symphysiotomy, 16. malpositions, 17. malpresentations, 18. twins, multiple fœtation, and monstrosities, 19. funis presentations, 20. retained placenta, 21. hæmorrhage, 22 sudden death, 23. rupture of the uterus, 24. inversion of the uterus, 25. puerperal fever, 26. phlegmasia dolens, 27. arterial obstruction, 28. puerperal mania, 29. puerperal scarlatina, 30. ephemeral fever, 31. sore nipples, 32. mammary abscess.

We are sorry, however, to be obliged to take exception to the matter of treatment again. The author alludes, in the preface, to our former critique, and at p. 61. has cited an array of authorities in defence of the practice of blood-letting. We might cite an equal array on the opposite side. It would have been well if the author could cite his own experience in support of his opinions, which, as far as we can understand, he has not done, as the following running translation of the passage in question will show :—

In no science is so much uncertainty met with as in medicine. The idol that was worshipped yesterday, is cast away today, and the broken fragments are picked up to-morrow to form another idol to be worshipped and cast away in its turn. Such has been the fate of blood-letting in the treatment of inflammatory disorders. Even so late as 1840 Sir H. Holland stated that the current of opinion among physicians was wholly on the side of bleeding in inflammation. The current has now so much changed that many practitioners have openly renounced it. It is not the intention of the author to enter here into a lengthened discussion of the subject. He will only briefly say that evil effects have resulted only from an indiscriminate use of this admirable remedial agent, without any regard having been paid to diseases and conditions for which it is appropriate. Hence the opposition it has recently met with.

Dr. William Aitken of Edinburgh has, in his Science and Practice of Medicine, vol. i, p. 156, admitted the importance of bleeding ; and adduced the names of Drs. Alison, Watson, Gregory, and Radcliffe, and of other celebrities in support of his opinion. He has further quoted a passage from Alison to this effect—"As to the specific questions of blood-letting or not, the quantity or the repetition of blood-letting, our predecessors were very nearly as well-informed as we are."

Dr. Edward John Tilt has, in his work on Uterine Therapeutics, 2nd ed., given out his opinion as to how far blood-letting is advisable in diseases of the uterus. He says :—"Because our forefathers bled too much, and thereby caused much mischief, it is no reason why bleeding should not be sometimes useful." He alludes to the admission even of Dr. Bennet of Edinburgh as to the usefulness of moderate bleedings in uterine complaints. He cites likewise the authority of Dr. G. Bedford, of Lisfranc, and of Romberg, and concludes—"I do not feel disposed to give up the remedy which has stood the test of ages."

It is no longer necessary to detain the reader with this digression. He should only bear in mind that if bleeding has been recommended, in the this work, for particular conditions, it has been done in accordance with the views of the most experienced accoucheurs.

We do not oppose any therapeutic measure, simply because it has gone out of fashion. On the contrary, we are ready to welcome

any measure, however monstrous it may appear, provided it is calculated, or has been found, to bring real relief, or save life, and provided no better substitute can be found for it. We are strongly convinced that the spoliative treatment is particularly unsuited in this country, and more particularly in the case of native females. Unless, therefore, there be an unmistakable local experience to countenance it, we must raise our emphatic protest against it.

Barring this defect, which by the bye still disfigures allopathic medical literature, we have no hesitation in recommending this work as a text book for the Bengali class of the Calcutta Medical College. The Bengal Government, at the instance of Dr. Ewart, is anxious to procure text-books on the various subjects of study of the vernacular classes. It appears from the *Indian Medical Gazette*, for the current month, that "singularly enough, the important subject of midwifery has received but scant justice at the hands of Dr. Ewart. The *Committee* (to whom the question was referred) do not notice it at all. A course of lectures for the Bengali classes at the colleges has recently been established; and it is a subject in which these classes take a deep interest." Dr. Tyler Smith's work on obstetrics, it is said, is set down as the best book on this subject for translation; but the editor suggests an original treatise would be far better. Of course, in the present state of things in this country, an original treatise on any subject is almost an impossibility. The work before us, however, being a compilation from various available sources, and not being a mere translation of any single treatise, is in so far original, and it will, we believe, admirably serve the purposes of tuition. We trust, therefore, Government will not ignore its existence, but extend to its talented and zealous author its hand of patronage.

ON THE COBRA POISON.

By Leopold Salzer, M. D.

In investigating the physiological effects of cobra on men and animals, we again meet with different varieties within the apparent uniformity of its action. According to Dr. Shortt of Madras (*Lancet*, May 16, 1868) the effects of the cobra poison observed in mammals and birds are the following:—The poison injected having found its way into the circulation, restlessness, dulness, drooping of the head and jactitation follow successively. The restlessness and change of position of the animal are constant. The bowels are evacuated, and the urine is passed. The pupils act irregularly, dilating or contracting. Respiration is slow and irregular, at times stertorous, with foam or frothy mucus issuing from the mouth, spasms and muscular twitchings. Reaction is arrested, as the animal cannot be roused by pricking or pinching the skin. Consciousness and ocular recognition continue to the last in most instances; sensation is retained, though modified; whilst the paralysis is incomplete. The voluntary movements, sometimes after becoming more energetic, soon cease altogether; and the animal may die without the slightest trace of convulsion or tetanic spasms. When the poison has been rapidly absorbed, its effects become apparent more quickly; and the venom is readily absorbed by any living tissue. The post mortem examination discovers the right side of the heart to contain some tarry-looking, soft clots of blood; and the left side empty. The entire venous system is engorged with the same kind of blood, more especially the large venous trunks. The liver is found hyperæmic, enlarged, and dark coloured. The first effect of the poison in the system seems to damage the current of blood, by the cells of the poison perhaps deranging the vital affinities existing between the blood corpuscles and the serum in which they float, and by that means the nervous centres are affected and nutrition arrested. On life becoming extinct, the pupils remain permanently dilated, and the blood found in the larger vessels, when removed from the body, coagulates within four or five minutes after death. Rigor mortis absent, the limbs remaining supple for hours after life becomes extinct, except only in a few instances, where it occurred in a couple of hours.

On the other hand, Dr. Hood (*Lancet*, Feb. 15. 1868) seems to lay more stress on the primary neurotic power of the poison. When a person has been bitten by a cobra, he writes, the first action of the poison appears to be on the great nervous centres of the body, the poison being immediately conveyed to them through the blood. This is rapidly shewn by its paralysing influence on those organs which are supplied with nervous power from these sources. The muscular power of the heart and the muscles of respiration, speedily become paralysed, most probably through the influence of the par-vagum and great sympathetic nerves. This muscular paralysis of the heart prevents it from propelling the blood through the lungs and a rapid stagnation of the blood takes place, not only in the larger vessels of the body but throughout the entire capillary system, which is seen by the sudden œdema or swelling that takes place, more especially in the bitten part. The breathing quickly becomes slow and laboured, and this failure of the respiration causes the blood to be insufficiently decarbonised, owing to the proper amount of oxygen not being received into the system. The effect of the poison on the brain keeps pace with these symptoms, for drowsiness followed by coma supervenes, and the patient has all the appearance of one who has taken a large dose of opium.

Correct as this view of the case seems to be, and moreover quite in accordance with the phenomena observed by Dr. Shortt, it is in so far erroneous, as it solely ascribes death to the poison's neurotic action. For it is not true that the changed state of the blood be solely caused through the asphyctic state of the cobra-victim, but at least as well, through a peculiar destructive influence of the poison on the blood itself; in other words, cobra is not less a hæmatic than a neurotic poison. This is best proved by an experiment of Dr. Shortt recorded in the same number of the Lancet. "If blood be drawn from the system and a small quantity of cobra venom be added, it becomes dark, remains fluid and does not coagulate. On the 2nd of March, 1868, blood so drawn was placed in two separate test tubes. Into one of these, two drops of the poison were let in, and the other left alone. In five minutes the blood in the latter coagulated, and the usual separation of serum and crassamentum took place, whilst the fluid in the other tube became dark coloured, and remained fluid for thirty

hours after, when it was thrown away owing to its proving offensive. The serum from the second tube was poured off, and a drop of cobra poison let in, when in a few seconds it became quite black."

As a good example of an exception to the rule, as regards the incoagulability of the venous blood in cobra victims, we quote here one of the experiments of Dr. Mohendra Lall Sircar, as reported in the 4th Number of the first Volume of his Journal. The subject of the experiment was a full-grown dog. It was bitten at 4-14. P. M. and died about 8. P. M. nearly 4 hours after the bite, without any convulsion. *Autopsy* 12 hours after death: On incising the left arm the tissues were found dry. On cutting into the bitten leg (left hind) a considerable portion around the bite was found dropsical; the veins that were cut through by the incisions were found to contain *coagulated blood.* Slight congestions of the posterior portions of the lungs; the right lung contained more clots in the vessels than the left, the superficial veins of the heart were gorged with blood; the points of the forceps penetrated easily into the substance of the heart. On being cut open *the chambers were found to be full of coagulated blood;* the right ventricle and the right auricle considerably distended. The aorta contained dark coagulated blood, the vena cava, the innominata, the subclavian and the jugular veins were filled *with coagulated blood.*

If we add to this what Dr. Hughes in his "Pharmacodynamics" writes on the same subject, we might get a pretty clear insight into the physiological action of snake poison in general and cobra in particular. In the article "Lachesis" he says, "It is generally admitted that the constitutional phenomena resulting from snake bites depend partly upon blood poisoning and partly upon distress of the nerve centres. Whether both these effects are primary, or whether the nervous effects result from the toxication of the blood, seems an open question. I am inclined to believe that they are both primary, although I doubt not that it is by absorption and diffusion through the circulation that the virus reaches the nerve-centres. The pneumogastric nerves are those which chiefly manifest the influence of the poison; thus we have sense of constriction and shocking about the throat, spasmodic dysphagia and dyspnœa, and slowing even to stopping of the

heart's action. If reaction takes place, the hæmatic influence of the virus becomes apparent." And in the article Naja: "The action of Naja is essentially identical with that of serpent-poisons in general. Of the effects of the cobra-bite, indeed, we only note that the neurotic symptoms predominate over the hæmatic. The affection of the pneumogastric is very apparent: in the keeper killed at the Zoological gardens, death ensued from suspension of respiration, and the air passages were filled with frothy mucus."

Our pathogenetic sketch of cobra would not be complete, without mentioning those remote, but the more pronounced, hæmatic phenomena, usually manifesting themselves after the first violent symptoms seem to have given way to reaction. We quote here from the late professor Miller's Principles of Surgery. The disordered state of the blood induces febrile disturbance of a low kind, aggravated by the local changes which meanwhile have occurred in the bitten part; and under this the patient may sink at a more remote period. By the absorption of virus into the blood, and its subsequent diffusion through the system, vital power is lowered generally. By imbibition of the poison in the part injured, the same result takes place locally. Under the stimulus of the injury the part inflames; and the process, advancing uncontrolled, in consequence of deficiency both in general and in local vital power, soon attains its worst results, gangrene attended with diffuse infiltration of a putrid sanies. With this there is secondary fever of a typhoid type.

Resuming the pathological phenomena, occurring under the influence of cobra, with respect to their fatal tendency, we find that death may ensue, chiefly by the neurotic action of the venom on the great sympathetic or par-vagum, causing paralysis of the heart or suspension of respiration; or chiefly by the hæmatic action of the venom, indirectly decomposing the blood, thereby incapacitating it to fulfil its normal vital functions; or by inducing febrile disturbances of a typhoid type, attended with gangrene. These different pharmacodynamic actions usually manifest themselves conjointly, so that the most exact observer is not always able to state which of them is the cause of all the others; nevertheless these distinctions are of the utmost importance to any rational attempt to save the poisoned victim.

All remedies or antidotes hitherto tried, have been employed on the contraria contraries principle, and with the exception of Ammonia, which undeniably was administered in many cases with good results, all the others thoroughly failed. We have in the previous article given the general reasons why dynamical antidotes applied on the contraria principle are likely to fail, and it would be a mere repetition to state them again with respect to cobra in particular. According to our notions on this subject, it is more wonderful, how ammonia, which is supposed to be administered on the same principle, should have resulted in greater success; we hope however to be able to explain in the course of this paper that apparent anomaly. Our principal object for the present is, to draw the attention of all zealous and impartial investigators to a whole field of experiments hitherto left untried, the field of Homœopathy. For the homœopathic law stands good, not only for idiopathic diseases, but also for such as are produced by drugs; in other words, any drug-disease will, in compliance with the law of *similia similibus curantur*, be best cured by such another drug which is able to produce a similar physiological effect on a healthy person. We cannot be expected to establish here the variety of that healing law in general; suffice it to state, that even the most staunch opponents of Homœopathy, cannot, in their polemics, deny, that there is truth in the curative power of similars (see Dr. Harvey's Four Letters on Homœopathy as quoted in the previous number of this Journal). Still as the above proposition might appear to some of our readers, a keen addition to the law of similars, we shall not omit to give a few striking examples to that purpose, before proceeding with our suggestion as regards the antidotic treatment of cobra poison.

The syphilitic poison is best (and almost exclusively) antidoted by its similar, Mercury; so is the gonorrhœal poison by its similar, Copaiba. Again in mercurial ptyalism, we find in Hufeland's Journal and in other publications a number of cases reported, where the tincture of Iodine, internally used, effected a perfect cure. In the Berlin Hospital the tincture of iodine is very commonly resorted to for such purposes with astonishing effect, although the sialogogue property of Iodine is generally known and admitted. The Homœopathicity of these cures is so evident that

Dr. Martin, in reporting these and similar cases in the *Revue Medicale*, comes to the sapient conclusion that Iodine *cannot* possibly cure ptyalism, because "*it would be irrational to attribute an anti-sialogogue property to a drug which is itself capable of producing this effect in the highest degree of intensity and duration.* (Hempel).—It is to that law, that the curative power of Arsenic in all diseases arising from putrid animal matters, may be ascribed.

Which then are the drugs most resembling cobra in their action? The proper reply to that question might involve at the same time the solution of the problem, how to antidote that dreaded venom. The drugs most homœopathic to the physiological effects of cobra-bite, are to our knowledge the following: Belladonna, Gelseminum, Cactus Grandiflorus, Cuprum, Arsenic, Hydrocyanic acid, and Ammonia. Of these agents, we would consider the three last mentioned, as homœopathic to the whole pathological state; and here again we would rank Hydrocyanic Acid as the foremost and Ammonia as the last of that class. The other above-mentioned remedies may be of high importance in the course of a treatment of cobra-bite; they may, by virtue of their partial homœopathicity, ward off certain concommitant symptoms occurring in one or the other stage the victim may have to pass; but they are, strictly speaking, not homœopathic to the proper pathological state, and therefore with respect to their possible antidotic virtues in general, most likely only of a secondary importance.

We shall now proceed to give the particulars of each of the above-mentioned remedies, in so far as they may be concerned in a case of cobra poisoning.

Ammonia.

The stimulant property of this drug is so well established and so often made use of in practice, that the rationale of its physiological action on men and animals, is quite put out of view and entirely left to works on toxicology. When we however refer to these works, we come to quite a different tale about the heart-stimulating power of ammonia. The experiments of Mr. Blake as quoted by Christison, show that ammonia introduced in large doses into the veins acts by suddenly *extinguishing* the irritability of the heart. Small doses first *lower* arterial pressure from debility of the heart's action, and then increase it by obstructing

the systemic capillaries. When injected into the aorta from the axillary artery, it causes great increase of arterial pressure, owing to the latter cause, and then *arrests the heart while respiration goes on.* From this it would appear that the stimulant property of ammonia in cases of syncope, fainting spells etcet., in general, in all cases where the slowness of the heart's action threatens to extinguish life, reposes on the drug's physiological action being *homœopathic* to that pathological state for the removal of which it is as often successfully employed. When we further compare the above-mentioned experiments of Mr. Blake, with these well authenticated statements, that men and animals bitten by cobra have been saved through an injection of ammonia into their *veins;* we cannot help believing that the whole process is a pure homœopathic one, whereby the dynamic effects of cobra on the heart, have been neutralised by a drug which would similarly have affected the heart when administered on healthy individuals. Pushing our comparison further, another similarity between these two poisons becomes not less evident, the similarity of their hæmatic action; both of them tending to render the blood incoagulable, by converting it into a loose, semi-fluid crudor. Under such considerations we venture to doubt the assertion of Dr. Shortt, that the active principle of cobra-poison is an acid because ammonia has been found one of its best neutralizers; and we doubt it the more, the larger the quantites of the liquid ammonia are, which we see Dr. Shortt and his colleagues employ with the pretended purpose of neutralizing an imaginary acid, which whenever existing, could hardly amount to a tenth of a grain in a case of cobra-bite. To put forth a chemical statement on pharmacodynamical grounds will always be a hazardous thing; in our case it seems to be unlikely besides.

Is it then rational from a homœopathic stand-point to apply Ammonia in a cobra accident? To this we answer: It is as far rational as it is strictly homœopathic. Mr. Blake's physiological experiments have sufficiently shewn that it is homœopathic to a paralyzed state of the heart; and for this stage of cobra-poisoning, we venture to say, ammonia will even beneficially act in homœopathic doses: the inhalation of the strong liquor might be sufficient. There is a most remarkable statement made by Christison, article Hydrocyanic acid, tacitly confirming our

views in this respect. In speaking of the treatment of poisoning with Hydrocyanic acid he says: "Of the diffusible stimulants, *Ammonia* is considered by many the most energetic antidote. The first who made careful experiments with it was Mr. John Murray of London. * * The favorable results obtained by Murray were afterwards confirmed by M. Dupuy. Afterwards however the efficacy of ammonia was called into question. Orfila stated in the third edition of his Toxicology, that he had several times satisfied himself of the complete inutility of this as well as many other antidotes. And Dr. Herbst of Gottingen has made some careful experiments, from which he concludes that ammonia, though useful when the dose of poison is not large enough to kill, and even capable of making an animal, that has taken a fatal dose, jump up and run about for a little while, yet it will never save its life. But further experiments of Orfila led him to modify his former statement and to admit that although liquid ammonia is of no use when introduced into the stomach, yet if the vapor from it is inhaled, life may sometimes be preserved, provided the dose of the poison be not large enough to act with great rapidity. He remarked that when from eight to fourteen drops of the medicinal acid were given to dogs of various sizes, they died in the course of fifteen minutes if left without assistance, but were sometimes saved, by being made to inhale ammoniacal water and recovered completely in little more than an hour."

But we do not consider ammonia homœopathic to the *hæmatic* effects of cobra, however analogous in their physiological actions they might, at first sight, appear to be to each other, and we therefore greatly doubt the antidotic power of ammonia in cobra-accident or in any cobra experiment, when toxæmic symptoms have decidedly made their appearance in the victim. In fact, the hæmatic influence of ammonia being decidedly of a *chemical* nature, it can, leaving apart all other considerations, no more reasonably be looked upon as homœopathic to a poison, which goes directly to destroy the *vital* affinities of the blood-elements by its *pharmacodynamic* action; since it is a well established fact, that a similarity in their final results between a drug's physiological action and a given pathological state, is not all that is required to satisfy the law of similars, unless this similarity extends to the whole process of

their respective actions. The application of ammonia when toxæmic symptoms have once decidedly set in has to our opinion a double disadvantage: it has to be administered in such large quantities as would be able to produce a chemical decomposition of the blood elements, in order to approach as much as possible its homœopathicity to the hæmatic effects of cobra, whereby a new source of danger is let loose upon the victim; and it would secondly, by all this, not be of much avail in its eventual curative sphere, since it will never be more than apparently homœopathic to that stage of cobra bite.

The drug which to our appreciation is the most homœopathic to, and therefore perhaps the most reliable antidote against, cobra poison is

Hydrocyanic Acid.

In proposing this vegetable acid, we are fully aware of the sentence pronounced in one of its late numbers, by the *Indian Medical Gazette*, to the effect that, cobra being an animal poison all antidotic trials with drugs derived from the vegetable kingdom will most probably be of no avail. The *Indian Medical Gazette* promised to give in a future article the reasons for that assertion, but has, till now, allowed that medical opinion to stand without ground and foundation, a very dangerous delay or omission indeed, for so frail an assertion as this. For our part we confess, we have been wonderfully struck by the opinion alluded to, holding as we do that the pharmacodynamic action of drugs is the only reasonable guide, for their selection and application, irrespective of their belonging to the mineral, vegetable or animal kingdom. The similarity of action between cobra and hydrocyanic acid will become evident by comparing the pathology of the former poison, as shewn at the beginning of this article, with the following:—

According to Wibmer, hydrocyanic acid decomposes the blood, destroys its coagulability, annihilates the process of oxygenation, and has a specific action upon the spinal marrow, more particularly upon that portion which presides over the functions of the lungs and heart; hence the labored breathing, the retarded circulation, the lassitude, stupefaction, insensibility, paralysis, death. In most cases, especially in cases where death does not set in suddenly, this paralysis of the spinal marrow and brain

is either preceded or accompanied by a violent excitation of these organs, which accounts for the convulsions, distortions and rigidity of the limbs, the trembling and tetanus. Pereira thus sums up the post mortem appearances in cases of poisoning by this acid:—The venous system is usually gorged with blood, while the arteries are empty; the blood is, in many cases, florid, dark, or bluish-black, and viscid or oily; the lungs are, in some instances, natural, in others turgid with blood. According to Professor Joerg of Leipzig, hydrocyanic acid may destroy life in two ways, first, by prostrating at one blow the functional power of the nervous system and extinguishing the sensibility; and, secondly, by gradually arresting the process of oxygenation. In the former case the animal dies suddenly, without the poison having had time to develope visible effects in the body; in the latter case, the above-mentioned pathological appearances will be met with more or less.

We have, in a previous article, dwelt upon the application of

Arsenic

in cobra accidents, for reasons given there; to this we would only add, that Arsenic is decidedly homœopathic to the local gangrene and to the typhoid state attending it, as they are liable to occur in cobra bite, and has besides many points of contact with cobra, with respect to its physiological action on the heart. (Although these latter effects of ars. are more of a remote nature). As a local application to the bitten part, there is therefore hardly a drug which recommends itself more urgently than a solution of arsenic. In the typhoid stage, hydrocyanic acid would be quite out of place; here again Arsenic might save the victim's life.

When medical aid can immediately be procured, after the occurrence of the accident, much may be done by the administration of

Belladonna.

This drug seems to us most homœopathically indicated in the very first premonitory symptoms, when there is no difficulty of breathing; no strongly marked, but only slight nervous phenomena manifesting themselves by a peculiar restlessness and uneasiness; no signs of paralysis anywhere. In the latter case we would give preference to Gelseminum.

If it be true what we remember to have read in some authors, and lately again in Grauvogel, that Belladonna has the property of restituting the red colour of blood blackened by snake poison, there would be a greater reason for the application of that drug.

In how far

Cactus Grandiflorus

may be necessary or beneficial for the cardiac disorders produced by cobra we prefer leaving entirely to experiments; it is on the authority of Dr. Hughes, who states, that, "its influence on the heart resembles that of Naja" that we propose the above remedy as a cobra-antidote.

The use of

Cuprum

may be called forth, when convulsions are severe and threaten to extinguish the victim's life. A case referring to that stage of cobra-bite is reported in one of the previous numbers of this Journal, by Major Brown, as having been successfully treated by a homœopathic preparation of the above-mentioned metal.

Lastly we ought not to leave untried the dilutions of different snake-poisons, which are undoubtedly the most analogues to cobra; or, in order to avoid uncertainty in cases of accident, the diluted venom of the lance-headed viper (Trigonocephalus Lachesis) a native of South America, and quite foreign to India.

It is needless to add, that all experiments proposed in this paper had to be conducted with minute doses, with the exception of Arsenic and Lachesis for internal use, which may be administered, even to animals in decimal dilutions from 3rd to 6th, the other drugs may be administered in drop doses of the mother tincture up to the third dilution. The scale of attenuation as well as the shorter or longer intervals at which a medicine has to be repeated, has of course to be left to the judgment of him who has to attend to such a case. The same has to be observed, with regard to the question: Is there always and under every circumstance, only one medicine to be administered at a time; or is it advisable to alternate two of the above proposed remedies? For, we cannot, in the face of the common error prevailing about the subject of antidoting, repeat it too often, that the process of antidoting on dynamical grounds any poison, is a matter of careful treatment, and not of blind and hazardous drugging without rhyme or reason.

CLINICAL RECORD.

Cases illustrative of the similarity of cholera to ague.

By Baboo Doorgey Ghose, L. M. S.

Cholera is very nearly allied or analogous to malarious fever. They prevail alike in miasmatic regions, and they go alike as sisters born of the same parent. Both are ushered in with a grievous langour, inactivity, and general depression of body and mind. Both are characterised by two different stages, the cold and the hot. The cold stage of fever is known by feelings of chilliness and langour shivering, shrivelling of the skin, cold and shrivelled hands and feet, blueness of the nails, urgent thirst, crampy pains in the limbs, pain in the stomach, exhaustion, anxious countenance, shrunk and pale features, with hollow eyes, hurried and oppressed breathing, headache, faintness, nausea, vomiting, and sometimes diarrhœa, in which case little or no urine is passed. All these symptoms are more or less present in the cold stage of cholera, or what is called the state of true cholera, with this difference that some of the symptoms are more severe. In cholera the cramps are more frequent and painful, exhaustion more marked, vomiting and purging more copious and frequent, and urine totally suppressed.

The hot stage of cholera is so very similar to that of fever, that it is called the febrile stage of cholera, marked as usual by hot and dry skin, quick pulse, fulness and pain in the head, excessive thirst, restlessness.

Either of these stages may be absent in both cholera and fever. An attack of cholera may pass off in death or recovery without the least sign of reaction. Fever is also known to terminate fatally in the cold stage, as in "Bombay fever" and it is more often found to pass off without any febrile reaction after the shivering. In districts where fever rages as an epidemic soldiers are found to drop down with shivering while at parade, and die instantly. Fever very frequently sets in without any shivering. But when cholera comes on without the cold stage, *i.e.;* with slight diarrhœa, vomiting, quick pulse and hot skin, it will be called without any hesitation an attack of fever, and not cholera. Why is this anomaly? If fever can have no cold stage, why should cholera?

The sweating stage of fever is strictly speaking not a stage of the disease, but a cessation of disease or restoration to health. The term is so inappropriate that it ought to be expunged from the literature of fever. With what reason then can we call this state to be a part of the disease. Some might urge that patients are known to die in this stage exhausted by copious sweating. These are very rare and excep-

tional cases. On the same ground when patients once known to die exhausted at the cessation of fever by copious purging or by copious urinating, we might say that patients die in the *purging*, or the *urinating* stage of fever.

Patients are alike predisposed to cholera and fever by fatigue, exhaustion, mental depression, intemperance, exposure to vitiated air, and improper, or insufficient food.

Both diseases have the same pathology. A noxious agent, or malarious poison goes into the circulation, either through the lungs or through the alimentary canal, and disturbs the nervous system—specially the medulla oblongata, the vagi nerves, and the sympathetic. This disturbance of the nervous system is the only source of all the phenomena described as the different forms of fever and cholera. But the real nature of the poison is still a mystery.

Morbid anatomy sheds no light on the distinction of the two diseases. Some cases of either description, exhibit no change in *post mortem* examinations; and some show congestion of the intenal organs—the lungs, the liver, the kidneys, the brain, and the spinal cord, &c.

The laws that govern the action of the poison of cholera, and that of fever are the same. Both are most prevalent in countries lying near the equator, both are most poisonous at night, both lie near the ground, both are carried along in the course of the wind, and both are diminished by drainage and cultivation.

Thus the two diseases resemble each other in every essential point—in their causes, predisposing and exciting—in symptoms, stages, and terminations—in pathology, and in morbid anatomy. In fact they are the same in nature, and convertible one into the other, as will be clearly illustrated by the following cases. Their treatment should therefore be the same. Dr. W. B. Woodman in his letter to Dr. Daldy published in Dr. Billing's First Principles of Medicine says "how any one can watch cholera, and not acknowledge its similarity to fever, I cannot imagine." Dr. Woodman has accordingly treated cholera only with *quinine*, and the *deaths* have been counted to be about 33,3 per cent. Dr. Billing thus remarks on the above letter:—"The employment of *quinine* which I have inculcated in this work in neuralgia, rheumatism, and congestion of the viscera, in aguish disease—in which I am supported by continental writers—suggests an analogous indication in cholera, in which I have employed it as an adjunct to *antimony* and other sedatives but without depending upon it entirely. Dr. Woodman's suggestion is however very valuable, specially as he has tried it singly; and on the first return of cholera I should be inclined to use it more freely as I do in remittent fever."

Case No. I.—On the 10th of December 1866, while I was at Rajmehal, I received a very urgent message at 12 o'clock noon, that Mr. G. S., aged 38, an engine-driver of the station, was laid up with frequent purging and vomiting of blood. As the driver was living very close to me, I immediately ran over to him, and found him extremely prostrated—his extremities cold, pulse very feeble, countenance anxious, eyes sunk, skin dry and of ordinary temperature, voice husky, spasms of the extremities and abdomen coming on every 5 minutes, very thirsty, purging and vomiting every 15 minutes, and the evacuations copious, red, and fluid, like colored water without any sediment. On enquiry I was told that on the previous evening he had driven to Teen Pahar as usual, and on learning that he was to wait there for a long time, he went on an excursion up the hills of Teen Pahar, and then came back with the train to Rajmehal with a feeling of fatigue due to the excursion. A short time after he went home and undressed himself, and got a strong shivering —a shivering that he never experienced in his life—which was soon followed by a severe attack of fever or the hot stage of it. Next morning the 10th of Dec., he felt comparatively easy, but not perfectly free from fever. He took a little tea, and went with the train to Teen Pahar, the fireman working for him. While in the passage, that is, at about 9½ A. M. he again got an attack of strong shivering attended with purging and vomiting of the nature above described. After a few such evacuations he lay down in a carriage, and came back to Rajmehal a little after 11 A. M. Before my arrival the number of evacuations was so numerous that they were not counted. After the evacuations set in he passed no urine. I prescribed *gallic acid*, and a mixture containing *chlorodyne* and *aromatic spirit* of *ammonia*; a *mustard plaster* on the pit of the stomach, *ginger* frictions over the extremities, and *iced water* to drink. Within a couple of hours the evacuations stopped, and I prescribed a stimulant mixture stopping other medicines. At 4 P. M. I saw him copiously perspiring, bowels stopped, no vomiting, no urine, cramps less frequent and painful than before, pulse almost imperceptible, extremities cold, and clammy. The stimulant mixture was continued every half an hour, surface rubbed with dry clothes, and hot and dry flannel was applied for supplying artificial caloric. At about 11 P. M. reaction set in, the pulse became strong and skin warm, and the patient was able to get up and walk a few steps. Next morning he passed urine, and felt all right.

Case No. II.—On the 14th of November last, I was called by Baboo P. M. M. aged 35, and a resident of Calcutta, at about 4 P. M.; I found

him in a collapsed state, his countenance anxious, eyes sunk, no pulse at the wrist, extremities cold, frequent spasms in the limbs, voice almost inaudible, vomiting and purging frequent, copious and incoagulable, pink-colored fluid, very thirsty and restless, and despairing of life. I ordered a *mustard plaster* to the epigastrium, *lead* and *opium pills*, *gallic acid powders*, a *stimulant mixture*, *ginger frictions*, and *iced-water*. The day before at about 10 A. M. he had a regular attack of fever with shivering. This fever had subsided in the night (of the 13th.) On the following day (the 14th) at 11 A. M. he had a severe fit of shivering attended with bilious vomiting, and this was soon followed by vomiting and purging of the nature above described. Since 1 P. M. he had passed no urine. I again saw him at 6½ P. M. and found him as low as before, but he had no more of purging or vomiting, spasms less frequent. I ordered the *stimulant* mixture to be continued every half an hour, and two *sinapisms* to be applied to the calves. At 10½ P. M. I found reaction just setting in. Pulse perceptible at the wrist, extremities cold, no vomiting or purging, no spasms, no urine, voice more distinct. *Stimulant* mixture was continued alternately every hour with warm *arrowroot* and *brandy*, and for *ginger* friction were substituted applications of *hot-bran* in bags. On the morning of the 15th there was reaction, pulse feeble, extremities warm, no spasms, no urine, no purging, no vomiting, but threw up the medicine once or twice in the night, no restlessness, very little thirst. All the above medicines were stopped, and a diuretic mixture with *gin* was ordered. At 1 P. M. I found him to have passed urine, and stopping the mixture I advised him to take a little sago or arrowroot with *port wine*, every now and then. At this visit the patient told me that he felt some shivering at 10 A. M., but it soon passed off without any febrile reaction. On the morning of the 16th I heard that he slept well and had no other complaint but extreme weakness. I told him to take *Decoctum carnes* in addition to *port wine* and sago. At 12 A. M. I was again called to see him; and I found that he was somewhat uneasy with a slight shivering. But it passed off without any assistance, or febrile reaction as on the previous day. From the next day I ordered for him *Quinine* mixture and *port-wine* which prevented all further attacks of shivering. The patient improved rapidly and went to office after a fortnight.

Case No. III.—I was called to a neighbour, Baboo S. D. aged 32, on the 19th of November last, at 3 p. m. Being told that the patient was continually purging and vomiting blood, I lost no time to call on him. On my arrival I found him prostrated, very restless, and

thirsty. His skin dry and of natural temperature, pulse full and strong but not frequent, spasms coming on frequently in the limbs and abdomen. Vomiting and purging constant almost every 10 or 15 minutes. The vomited matter consisted of thin red fluid mixed with mucus and not very copious. The stools being passed at different places I examined them separately. The first few stools were scanty, fluid, bilious, and mixed with mucus, gradually the stools changed to thin red and copious fluid, I saw the patient to pass one of this nature before me, passed no urine since 1 P. M. The disease commenced with strong shivering at 12 A. M., which still continues. He was ordered to have a *sinapism* on the pit of the stomach, *lead* and *opium pills*, and a mixture containing *port-wine* and *nitric ether*. The bowels stopped after taking two of the *pills*, and the vomiting after the *sinapism*, in the course of a couple of hours. The mixture was continued till mid-night when he passed urine. Next morning he was all right.

The symptoms of all these cases are strictly those of cholera—all had purging and vomiting, cramps, stoppage of urine, and early prostration. In all, the disease commenced with shivering as if it were an attack of ague, and the remaining symptoms of the cold stage of ague were very strongly marked. The bloody nature of the evacuations is by no means uncommon in cholera. Almost every medical practitioner in India has some experience of it. Dr. Morehead in his *Diseases of India* says "in occasional instances (of cholera) dejections during the collapse are of pinkish tint; and they may be so, and not profuse from the commencement, or they may present this appearance at a later period when they have ceased to be very watery. Discharges of this kind, caused no doubt, by partial transudation of the coloring matter of the blood, have been observed by me only in natives. They are of most unfavourable import, for I have never met with an instance of recovery." The cases cited above show that pinkish dejections are not of so unfavourable import as Dr. Morehead seems to think. The source of the color in the dejections is simply due to the escape of the coloring matter of the blood contained in the highly congested capillaries of the stomach, and bowels. The strong shivering in the above cases distinctly show that the blood rushed from the surface into the internal organs, and made them congested to an unusual extent.

Not being aware of the real nature of the disease (cholera) I have hitherto employed the ordinary treatment, but I now intend to follow Dr. Woodman in using *quinine* freely, and I earnestly solicit the attention of all my brethren to this mode of treatment.

Gleanings from Contemporary Literature.

DRUG PROVING.

By I. S. P. Lord, M. D., Poughkeepsie, N. Y.

(Read before the Central N. R. Hom. Med. Society.)

If we really desire to say something profitable about "Drug Provings," we have first to determine what a drug is; second, what a drug does; third, what that action is.

1st. What is a drug? A drug is any substance employed in the cure of disease, and technically, only in diseases of animals.

2nd. What does a drug perform? If it uniformly cured, it might be said to perform cures.

We can only define it as a substance intended to act on the living animal organism for the cure of disease. Drugs act only on living organisms; never on inorganic, or on dead animal or vegetable matters. Physiologists have favored us with only very indefinite information in regard to the elements acted upon, or the mode of action. Some speak of the "molecular action" of, and in, the tissues and organs, which means little, and perhaps nothing. Thinking, then is *molecular action* of the brain; secretion of bile is *molecular action* of the liver.

But Gall and Spurzheim demonstrated that the brain is not a homogeneous mass—a unit. And no modern physiologist will affirm it to be. Could we take another step back, and demonstrate the differential constitution of the neurine cells that compose each separate phrenological district, we should be in a position to get, at least, a transient view of the relation of mind to matter. Our present purpose, however, is merely to show the connection between matters and drugs.

We assume, then, that drugs act only on living animal organisms. And the question meets us: What is—not *an* animal organism, but what is *the* animal organism on which a drug acts?

A man is an animal organism. Surely it will not be claimed that any drug has a molecular action on a man. On the contrary, man is a complex organism—an aggregate of organisms. One drug is said to act upon the liver, another on the brain, another on the lungs. This may subserve the purposes of antiquated therapeutics, but is far too indefinite for "Our School."

It may or may not be true, for instance, that a certain drug acts on the liver, when it only increases or lessens the secretion of bile. The liver is itself composed, mainly, of two kinds of organisms, and a drug can act upon one of these without affecting the other. They are as distinct from each other as are the pancreas and spleen. And the bile-cells differ as much from the other cells of the liver as does the spleen from the kidneys. If we go beyond and below the bile and other cells, we find nothing in the liver that has life. The cells are found every where. They constitute the substance of all the organs and tissues that "make up" the man. They are, each and every one, a perfect organism, and the lowest, most minute form

of matter that manifests the phenomena of life. Connective tissue cells pervade every part, organ, and tissue, and are essentially alike. But the bile cells differ from the salivary cells, these from the pepsin cells, these from the muscle cells, and these again from the neurine cells, while these different kinds differ among themselves. And so through all the various differing organs and tissues. And this diversity is not merely *apparent*. There is a demonstrable difference in form, constitution and arrangement.

In speaking of the long delay in discovering the circulation of the blood Sir Gilbert Blane observes: "If a modern anatomist were to find in a new animal of uncommon structure, just brought from New Holland, a large muscular organ, the function of which was not obvious, he would not merely conjecture, but decide with the most confident certainty, that it performed some important function requiring powerful mechanical action. *A moment's serious reflection* on the materials and structure of the heart ought in like manner, to have revealed the circulation to physiologists, many ages before it was detected by Harvey."

Upon the whole, if the subject of final causes, as an index of the operations of nature, be duly considered, it will no longer be deemed unphilosophical to avail ourselves of them, as a clue for tracing some of the most secret operations of nature.

So when we see a number of kinds of cells in the liver, each differing from the other, one kind constituting the mass, apparently having only a general relation of contact or aggregation, and another differing greatly in constitution and form, and having a peculiar and specifically unvarying arrangement, we may decide, with the most "confident certainty," that some specific purpose was originally designed. And when, on examination, we uniformly detect free bile in contact with them, and no where else, we can only conclude that they manufacture the bile. And if this be further verified by observation of the salivary and other glands, we may safely lay down the rule.

Difference in cell-form, or cell constitution, or cell arrangement, indicates difference of function. And what is function?

Function is what a cell does. The muscle-cell contracts, the bile-cell manufactures bile, the neurine-cell correlates nerve force, and so of all others. When a cell acts or does any thing, it is function; and the telling about it is Physiology, unless it be disordered, when it becomes Pathology.

But as the animal does not act as a whole, nor does any organ constituting it as a whole, to produce any one result, does the ultimate organism, which is also complex, to wit: the cell, act as a whole in producing specific functional results?

For instance, in the general organism, the brain has one general function, the liver another, the salivary glands another, the lungs another, and different tissues or parts of these several organs have different and more specific functions.

Now shall we stop here, or shall we carry the rule down to the ultimate organism—the cell?

The animal cell, with three unimportant exceptions, is uniform in its elemental structure, *i. e.*, composed of the same number of parts.

1st. The cell proper, or a membrane inclosing water and granules.

2nd. A nucleus within this, "made up," like the cell, of a membrane and granular matter and water, but differing chemically and otherwise from the contents of the cell.

3rd. A nucleus within the nucleus, having, like the nucleus, a membrane and granular contents, with unknown qualities.

Now recurs the question, Does each of these parts have a special function, or is function the collective act of all? The last conclusion is unwarranted by the rule. It is manifestly inadmissible.

But we will examine a bile cell, and inquire into the capacity and ability of each part to produce bile. Is the function of a bile cell in the nucleus? Now setting aside its microscopical proportions and manifest incapacity, we are met at the threshold with the objection, that inasmuch as the portal blood, from which bile is manufactured, cannot come in contact with the nucleolus without first passing through the cell proper and the nucleus, it is absurd to maintain that it has any thing to do with the making of bile. Moreover it seems to have a special function of its own, to wit, reproduction; for cells never duplicate unless they have a nucleolus, and all cell division or reproduction begins with a division of this nucleolus. * The same objections, though perhaps with less force, might be urged against the nucleus. There can be little doubt that the nucleus has a special function of its own, to wit, life. A cell may lose its nucleolus and still live, though it cannot reproduce. It may lose its granular matter and water, one or both, and recover them again, and continue to live. But immediately it loses its nucleus it perishes; while a free nucleus will live a long time in serum and chyle.

There is nothing left for the cell proper, then, but function in general, or the secretion of bile, saliva, and gastric juice, muscular contraction, and all other functional phenomena.

Function, then, is what the cell proper does—cell action. Cell action is cell motion. For there can be no action without motion. Now what moves?

It has been noticed that, in certain large vegetable cells, there is a current of granules around the insipe, always in the same direction, and apparently beginning at the nucleus and passing the same point in ever recurring revolutions. The motion is intermittent, remittent, irregular, accelerated, rapid, retarded, or continuous, according to circumstances; that is, the presence of more or less light, heat, external motion, etc.

A weak current of electricity accelerates this motion, a strong retards, arrests it and if too long continued, it is not resumed, and the cell perishes. If the motion is resumed, the current starts from the nucleus and runs in the original direction. It needs no elaborate argument to enable us to reach the conclusion that this motion is the essential of vegetable cell function; that is, the cell does nothing, produces nothing without it. It is the active agent in the manufacture of the almost infinite variety of vegetable products, from essentially the same material, and moved by the same forces.

And if the constructing material and the power are essentially the same in all vegetables, it follows that the *cells* must differ to produce so diversified results. The granules in the starch-cell of a poppy *must differ* essentially from the granules of the poison or opium-cell; and doubtless there is an equivalent difference in the cell motion. Put a poppy and a belladonna seed (which are only compound cells) together into a pot half or three-fourths filled with earth; furnish them with light, heat, water, and subject them to the same conditions, and the result will be two plants, one a poppy the other belladonna. The form, color, taste, and smell of these plants have nothing in common, and the functional, specific products differ as much as if one were produced in the western, and the other in the eastern hemisphere.

Certainly this can be explained only on the assumption of a constitutional difference in the specific, or poison, and other cells. In the animal, as we have remarked, all the organs and tissues are composed of cells similar to vegetable cells, and we meet the same diversity of form and function. As the poison cells of the poppy have a peculiar form and arrangement, so in the animal kingdom we find, as in the rattlesnake, a peculiar apparatus, and a specific cell form, for the manufacture of the specific poison.

The analogy is sufficient, and we assume that if a certain specific motion in a vegetable cell determines certain specific and uniform results, which we call function, function in an animal must be the result of a certain and specific motion in the animal cell. In a normal condition there is always a certain motion imparted to cell contents by the nucleus, the very lowest and inappreciable degree of cell function. As if a man should keep up some degree of motion in the machinery of a steam flouring mill with a liver, while the steam was turned off, because there was nothing to grind. The motion might be imperceptible; but, appreciable or inappreciable, it would be the normal motion of the machinery. When the bins are replenished with wheat, and the hoppers filled, and the steam turned on, then the proper function of the mill appears in the products. This is mill function. Now the equivalent of this man power in the mill is the nuclear power in the cell; and so long as there is life, so long will the nucleus furnish the power.

We admit that this is only a deduction, and that it is only when the specific excitant is furnished, that the cell produces the phenomena that we call function. For example, when, after a full meal, an ample supply of portal blood (the normal excitant of the bile cells) is poured into the liver, the activity, or, technically, the granular motion of these cells, is indefinitely increased, and the result is a normal supply of bile.

Now is any one prepared to affirm that there was no granular or functional motion in the cells before the portal blood arrived? Which of the two is most reasonable—that it caused the motion, or that it only increased that which existed before. We see that the impulse of the heart, the mere mechanical vibrations, becomes a life and functional force in the animal organism. Why then should not the nucleus, ceaselessly vibrating from the

impulses of the various life forces, impress more or less motion upon the granules of the cell. Indeed, it is impossible that it should not cause a granular motion, and that the motion should not be in the precise direction required by the original construction of the cell.

If we take a voluntary muscle-cell for an example, and assume that specific motion is the essential of function, and contraction is function, then it follows that when the specific or will-force is withdrawn or ceases, there will be no contraction; a state, in short, equivalent to paralysis. This conclusion is of course, inadmissible. The specific will-force only increases or accelerates the motion that existed before.

The specific force of the involuntary, as well as the voluntary muscles, is furnished by neurine cells; but the same difference in form, and doubtless in constitution, is found here as elsewhere, and the same inevitable change of action resulting in change of function, and *continuous* supply of ganglionic force to the cells of the involuntary muscles. If the heart and arteries depended on the neurine cells of the cerebrum for a supply of nerve force, there would directly be neither function nor life.

And here we may remark, that all these phenomena, reproduction, life, and function, result from the application of forces to certain forms and conditions of matter; and that a human organism is no more independent of the forces we call light, heat, motion, etc., than is a vegetable. Neither has any inherent life, more than a crystal, or a grindstone. Function is a compelled motion—action. A cell does nothing except what it is forced to do. What is called the *vis vitæ* has but little to do with function proper. The only *vis vitæ* is the nuclear motion, which, as we have seen, impresses a small but never ceasing, motion on the contents of the normal cell, just enough to keep it, so to speak, in working order.

But the nucleus has no inherent life, more than the cell proper. It, also, is the creature of compulsion. Its granules are moved by the same excitants as the nuclear granules of vegetable cells. In the absence of all excitants, nuclear motion ceases, and life is suspended, or becomes extinct. So long as the nuclear contents move at all, they move specifically, or, so to speak, *in the line of life;* and the unvarying tendency of nuclear force is to *restore* normal motion to disordered cell contents, as well as to preserve the normal motion when undisturbed.

And this is the "*vis medicatrix naturæ.*"

Light, heat, electricity, motion, and other life, and general functional excitants, act on cells with different degrees of intensity, from the most trifling acceleration of normal motion, through the degrees of increase, to the highest point of normal activity. Or the action may be farther intensified so as to arrest, and even destroy, both cell and nuclear motion at once; as when one is struck by lightning; or in concussion of the brain, or when exposed to a great heat.

Now in all cases where the motion of the cell contents, alone, has ceased, and the nuclear motion remains unimpaired, the nuclear force is sufficient to restore the lost motion. If the nuclear motion has merely ceased, and

the granules are not changed, and their arrangement not disturbed, a slight mechanical force will restore life and function, just as one shakes his watch, that has run down *after winding it up.*

And now we are somewhat better prepared to investigate drug action. We assume that drugs do act on the human organism. That some act in one way, some in another; some on one part, and some on another; some sooner and some later. That no two act equally on the same part, and no two produce precisely the same results. There is also, in these results, the same diversity that we have shown to exist in function caused by normal excitants. Drugs, therefore, must act on the same living organisms, and in our inquiries, we may properly confine ourselves to the cell. The function of the specific cells of any organ requires the application of some specific force direct or indirect, absolute or relative.

The portal blood, for instance, is not only the material of which bile is made, but conveys, also, the normal, excitant force or forces that compel the cells to make it. But this same portal blood would be an irritant in the brain, and act precisely like a drug on its neurine cells. The acids, fixed salts, and urea, are the normal excitants of the secerning cells of the kidneys; and even when considerably in excess, only increase the secretion, or function. But they disorder, and sometimes arrest the function of the neurine cells of the brain, when the least in excess, while they have little or no effect on the neurine cells of the spine.

Opium acts directly on the neurine cells of the brain, but there is no evidence of any *direct* action upon the bile cells, or the specific spleen-cells, or those of the pancreas, kidneys, or ovaries, or mesenteric glands. Aloes, probably, acts directly and exclusively on the bile-cells. It certainly has no direct action on the neurine, or muscle-cells. So we conclude:

1. That a normal excitant of one "set" of cells, may be an abnormal excitant or irritant to another. In other words, that which causes functional activity in one organ, may disorder, and even annihilate function in another.

2. That excess of normal constituents of the blood may only increase the functional activity (cell motion) of one organ, while it disorders, and may even destroy it, in another.

3. That excess of normal excitation does not differ essentially from drug irritation, and both produce disorder or death in precisely the same way.

4. That most drugs act, directly, only on one kind of cells in an organ, and unless greatly in excess, only on the cell contents, and not at all on the nuclear.

5. *That drugs are not necessarily cell disturbers or irritants.*

This last conclusion is perhaps somewhat startling, and if not, it is certainly novel; but in the further consideration of it we shall discover that it is not only the key to drug pathogenesis and therapeutics, but, if rightly understood, "lays" that ghostly vagary that shrouds in its shadowy form our Materia Medica; I mean "primary and secondary symptoms."

To begin at the beginning: when a pathogenetic dose of a drug is taken into the organism, it acts upon the cells of some particular part, as opium upon the neurine cells of the brain, strychnine upon those of the spine, cantharides upon the secerning cells of the kidneys, and mercury upon the epithelial cells of the lymphatic glands.

What does the drug do?

If it requires an excess of a normal excitant to disorder or change the normal granular motion of the cell, while a very considerable increase merely adds to the normal activity, is it to be credited that the feeble, *incipient* action of a pathogenetic dose of a drug can change a normal cell motion. At least, if this is not admitted, it will not, assuredly, be denied that the dose of a drug might be so minute that it would only increase the normal cell motion or function. This is the physiological significance of the ALTERATIVES of "Ancient Physic."

And if a dose can be so small as only to accelerate the normal motion, and thus increase normal function, is it possible to determine the precise dose necessary, and the exact time required to change or disorder function.

There is a great relative difference in the activity of drugs. Some seem to act only on cell contents, some on nuclear, and some on both. It is quite possible, after all, that it may be resolved into the law of quantity.

For instance, a *little* electricity or mechanical force may *be*, and *is*, a life and functional excitant, but as we have already shown, when greatly in excess, either of them may arrest both nuclear and cell motion. Doubtless a very minute dose of the upas tieuté, or prussic acid, would only increase cell motion; but in a very considerable dose, they arrest cell and nuclear motion precisely like electricity and mechanical force. Dose, then, is merely relative; intensity or activity being the equivalent of quantity. A grain of magnesia can have no perceptible effect, and an ounce only disorders the function of the epithelial cells of the alimentary tract. One twentieth of a grain of calomel will increase the activity of the bile-cells; twenty grains may disorder all the epithelial cells of the whole digestive apparatus.

Admit that the law is quantitative as regards the drug; it by no means follows that it is so in regard to the cell. Experiments prove that a dose producing symptoms in one organism (person) may have no apparent action in another. We have time here only to remark, that susceptibility to drug actions depends, not upon blood vessels, or nerves, or lymphatics, or glands, or color, or civilization, or refinement, or "delicate sensibilities," but upon the original constitution of the granules of the cell and of the nucleus; on the size of the cells; on their proximity; on their freedom from undue, and subjection to proper, pressure, and on the fluidity of cell contents. If, for instance, there is too large a proportion of water in the cell, the motion will be accelerated, but the functional product scanty; if too little, the motion will be retarded, and the products imperfect. So of pressure, and all other conditions, varying from a perfect normal standard. The same difference, in this respect, exists in the cell as in the entire "microcosm," or in the "body politic."

Difference of susceptibility admitted, and the susceptibility given, what quantity or dose will cause pathogenetic symptoms? Manifestly that dose which, soon or late, changes the normal motion of cell contents so much as to produce a change of function. For change of function is the only evidence we can have that a drug has acted as a drug.

The simple increase of the normal motion is not the pathogenetic disorder—or disease generating action—of a drug, because it is not a disorder or disease at all. Again, it is not in any proper sense drug action at all, inasmuch as it is only a simple increase of what existed before, and not in any way characteristic of the drug, being common, not only to all drugs, in some quantity, but to all excitants.

Drug symptoms, then, are only those phenomena that appear after the drug has changed the cell motion from normal to abnormal, and this abnormal motion will continue until the drug is withdrawn, or eliminated, or has by persistence, or excess of action, arrested cell motion, as in paralysis, or changed the constitution of the granules, and introduced some other motion or function, as in fatty degeneration. In either, or any like case, however, there can be no drug-action recognized. Paralysis is not a pathogenetic symptom of any drug, nor is any drug directly homœopathic to paralysis. It is an entire loss, or absence, of cell motion or function. It may be a consequence of the action of a drug, but is not a primary, or secondary, or any action of a drug, whatever.

From the first pathogenetic symptom to the last, a drug always acts in the same line. It effects a certain change peculiar to itself; an alteration in the specific normal direction of the cell granules; and so long as it can maintain this change of motion, there will be change of function, or drug symptoms.

Immediately the drug is withdrawn, the normal motion, under the influence of the nuclear force, will be resumed, or at least that will be the tendency. This is functional disorder. But if the drug has changed the constitution of the granules, so that they are not of the same form, or size, or density, or material, we have structural disease.

In passing we may remark, that some drugs seem to act more in the same "line" with normal excitants, and require a much longer time, and much larger doses, to disorder function, than others.

Again, some drugs cause only functional disorder, though taken regularly for long periods, while others immediately produce structural disease.

Apply the principles we have sought to establish, to our Materia Medica, and there would be a wild scattering of symptoms. It is now completely lumbered, and clogged, and swamped with "primary and secondary," and non-specific, and "curative" symptoms, not one of which has any business

To prove a drug, we need first to determine precisely what the drug is; next, the susceptibility of the prover. Then give the least dose that will cause an alteration or change in the normal condition of the prover. Let the symptoms be carefully observed, and determine if possible what part is

first acted upon by the drug. It is highly important at the outset to determine whether the symptoms result from the direct or indirect action of the drug.

For instance, the first *drug* symptoms are irregular or prolonged contractions of the muscles—altered muscle-cell function. Does the drug act directly, on the muscle-cells, or indirectly, on the neurine-cells that furnish nerve force to the muscles?

Or if the drug symptoms are nausea, faint feeling at the stomach, griping in hypogastrium, pressure in the right hypochondrium, heat in the rectum, and bilious stools, does the drug act directly on the inner surface of the intestinal canal, or does it act on the bile-cells, causing an increased quantity of bile, more or less changed? If the first, then they are all drug symptoms; if the last, the mere abdominal symptoms are pathogenetic of some kind of bile, to be determined by analysis, and only the liver symptoms are to be accredited to the drug. They are the only drug symptoms, and all the consequent ones belong to the bile, and are, simply, evidences of the increased secretion and vitiation of the bile, and not drug symptoms at all.

Similiar phenomena follow the ingestion of an excessive quantity of digestible food, causing excess of portal blood. Excess of portal blood causes excess of bile, and excess of bile all the other symptoms. Having determined the place where the drug really acts, special histology will be your guide, and physiology your teacher, in determining the value of every symptom as it appears; and you can select from the mass the characteristic symptoms at sight.

This is the true relation of physiology to drug proving, and is infinitely better than poisoning puppies and strangling kittens in search of secondary symptoms and structural lesions. From this point it is but a step to the region of therapeutics, where we feel inclined to stray, but time forbids.

Before we close, however, we cannot refrain from suggesting that far too much importance seems to be attached to the "one remedy" dogma. Polypharmacy is doubtless erroneous in theory and disastrous in practice. In mixing two or more drugs, and thus bringing them in direct contact, there is some risk, at least, of chemical and dynamic changes. But it is difficult to conceive that a remedy which gets into the circulation, and is carried to the bile-cells in five minutes, can interfere with another introduced half an hour later, which goes directly to, and acts upon the neurine cells of the spine, and indirectly on the muscle cells of the heart and arteries, and thus only remotely, through a disturbed circulation, acts on any other organ or tissue. If urea, and uric acid, and creatine, and xanthine, and sulphur, and chlorine, and phosphorus, and soda, and potash, and lime, and magnesia, and sulphuric acid, and phosphoric acid, or their proximate elements, can be hustled through the arteries and veins, like the various articles of commerce which are rushed through the thoroughfares of a great city, and each safely reach its appropriate destination, we need have no doubt of the result, when we are sure that we have introduced the proper remedy for the disorder of one organ, if we are obliged, directly after, to follow it

with one designed for the disorder of another. And although, as an individual, I would discountenance the practice, yet it would be a pardonable credulity, if one should believe that two or more drugs, introduced together into the organism, might safely and without interference, finally reach their proper destination, and each act as specifically as if there were no other drug in the pharmacy, or in the world.

Recoveries, at least, follow such prescriptions, and why not cures?

The carbonates, and chlorides and alkalies, and acids, and sulphur, and phosphorus, and lime, move harmoniously along in close proximity for half a century or more, and why should they elbow and quarrel with their infinitesimal relatives, when introduced by some young, ambitious, and enterprising prescriber. But seriously, if it is allowable in extreme cases to repeat the dose every few minutes and even alternate medicines when contradictory symptoms appear, why not, *where there is less urgency*, in cases equally perplexing and contradictory? The fact is, that disease is neither practically nor yet theoretically a unit; and, though it may be true in the abstract, that no two abnormal actions can be carried on in the same place, at the same time, in the same organism, it is equally true that two pathogenetic forces may act on the very same cell contents at the same time, producing modified results more or less unlike those of either when acting separately on the same cells. If a man is exposed to a dozen pathogenetic agencies at once, and two or three of them are specific irritants of the bile-cells, it is impossible to conceive that either should produce its own pure and unmixed symptoms. Probably all of them would act, and each would certainly modify the action of the others. The result would be, practically, a mixed disease, in which the *keen* observer would discover unusual and perhaps incongruous symptoms, having their similars in the pathogeneses of no proven drug. The specific poisons of scarlet fever, measles, diphtheria, etc., etc., certainly modify each other, though they do not act equally and alike on the self-same organs, tissues, and cells.

It is illogical to conclude that either or any of the pathogenetic agencies stand aloof and refrain from interfering with the action of another, except on compulsion. It is certainly not impossible that two or more different disorders may, at the same time, occur in the several different kinds of cells of an organ, each being measurably independent of the other. The bile-cells, for example, might be disordered by a specific cause, and the parenchyma of the liver by a general one, and a drug that will act on one will not act at all upon the other. Shall we give one remedy and cure the parenchyma, and then another and cure the disease of the bile-cells, or shall we alternate the medicines and cure both together. But we can go even further. The contents of the cell may be disordered without immediately affecting the nucleus.—*United States Medical and Surgical Journal*, January, 1869.

Correspondence.

TO THE EDITOR OF THE CALCUTTA JOURNAL OF MEDICINE.

DEAR SIR,—In your article on the treatment of cholera you state, "diarrhœa, it appears, must be a very rare symptom of camphor; the *involuntary diarrhœa* noticed by Jahr must have been the effect of an extreme dose." Again "the nausea and vomiting are not frequent effects of camphor; in all the reported cases of poisoning these do not figure at all." You cite the case of a child from practice, but attribute the symptoms more to the largeness of the dose of camphor. Again, the author of the pamphlet "Homœopathy Expounded and Exposed," speaking of camphor states, "you are all sufficiently acquainted with this substance to know that if given to a person in health, it will not produce cholera, or any thing like cholera." My humble observations do not substantiate these statements. To corroborate the fact, that camphor in large doses *do* bring on choleraic symptoms when taken in health, I beg to bring forward two cases which came to my notice in private practice.

Case 1.—A child aged 18 months, accidentally got a piece of purified camphor (cake) weighing nearly a drachm and ate it all. About an hour after, violent purging and vomiting set in, and the child became collapsed in 4 or 5 hours. At first I thought it was a case of genuine cholera, but on enquiry I learnt the true cause of the malady. Restlessness, intolerable thirst, and sinking of the eyes, coldness of the body, copious rice water stools, frequent vomiting, feeble pulse, in fact all the symptoms of cholera supervened. The child's life was in danger but fortunately it rallied by judicious allopathic treatment.

Case 2.—A boy aged 3 years, suffered from purging and vomiting after taking some camphor, (quantity not known); no other serious symptoms supervened, but the action of camphor was well marked.

I remain, &c.,

B. M. Sircar.

We have to tender our best thanks to the Editors of the following Periodicals for regularly exchanging with us :—

The Indian Medical Gazette.

The British Journal of Homœopathy (Henry Turner & Co. London.)

The Monthly Homœopathic Review (Henry Turner & Co. London).

The United States Medical and Surgical Journal.

The American Homœopathic Observer.

The Western Homœopathic Observer.

The "Homœopathic Sun."

The American Homœopathist.

The Indo-European Correspondence.

The Hindoo Patriot.

The Bengalee.

The Indian Mirror.

The Well Wisher.

The National Paper.

The Dacca News.

The Indian.

We shall be glad to exchange with any Medical Periodical in the world.

Books, &c., for review, to be sent, carriage paid, to the Editor, direct.



THE

CALCUTTA JOURNAL

OF

MEDICINE.

VOL. II.] **May & June, 1869.** [NOS. 5 & 6.

ON THE PHYSIOLOGICAL BASIS OF PSYCHOLOGY*

THE great and fundamental difference between the study of Mind and the study of the other Objects of Nature, consists in this, that there is only one possible mode of inquiry in respect of the latter, whereas there is a two-fold mode of inquiry in respect of the former. Material objects can only be studied objectively; all the information that we can gather about them is through the media of our senses; we cannot by sheer dint of thinking come to any knowledge of their properties. Mind, however, can be studied both objectively and subjectively, that is, by the observation of its own phenomena, or by the observation of the phenomena of other minds.

Now this additional, the subjective mode of inquiry in reference to the phenomena of the mind is no doubt a great advantage. The more instruments of research we possess, the more accurate and thorough must be our knowledge of the objects

* Being the substance of a Lecture delivered by the Editor at a Meeting of the Canning Institute, Howrah, held in April, 1869.

of research. And nothing can be more gratifying to us than that for the study of ourselves we need not go much beyond ourselves, that we only have to look within, turn our consciousness from the external world to itself, in order to know what is going on there.

But this advantage has been, by reason of its being an advantage, a serious impediment in the way of the progress of our knowledge of Mind. The subjective method, being in appearance at least, by far the easiest, has been had recourse to in the investigation of mental phenomena to the neglect of the objective method. All ancient inquiries about the mind, in fact, if not exclusively confined to observation of its phenomena in individual consciousness, at least were pursued chiefly in that direction. In consequence of this each observer looked upon himself as an authority, and his speculations necessarily took a tincture from the peculiarities of his own mental constitution. It was of course impossible not to make references to mental phenomena as observed in others, but this was only to confirm the views already developed by observation of phenomena in one-self. In other words, the objective observations were always subordinated to the subjective. The final appeal was always to the individual consciousness and not to outward facts which are open to the observation of all. The subjective method is easy only in appearance. It is true we have not to go beyond ourselves; but it is not the less true that self-scrutinization is the most difficult of all our mental acts, especially when it is for the purpose of observing the evolution of the phenomena of consciousness, the laws of their genesis, succession, and association. For the moment we turn our attention to any phenomenon of the mind it ceases to be, it becomes a thing of the past, and we can therefore examine it only through memory. But besides this, the subjective method alone is absolutely incompetent to give us any information regarding the mental life of the infant, the idiot, the insane, the brute; and further it cannot even give us the whole information regarding the adult mind. There are states of the mind which are perfectly unconscious and therefore cannot come within the domain of consciousness. Hence it is that some of the most difficult problems of psychology have hitherto met with no satisfactory solution. Hence the never-ending dispute

between idealism and realism; also as to whether the faculties of the mind are fundamental, primitive and innate, or whether they are the mere creations of circumstances, whether all our ideas are innate or all acquired, or some innate and some acquired; as to the essential distinction between reason and instinct, between man and the brutes.

It is only recently that the objective method has begun to have that degree of attention paid to it which its importance deserves; and accordingly a much more accurate philosophy of the mind is now being raised on solid foundations, on the observation of its phenomena in all its phases, and conditions, normal and abnormal, in the animal series from the dawn of its first manifestation in the lowest animal up to man, and in man from the dawn of its activity in infancy to its apparent decline and cessation in extreme old age.

But even this is a most imperfect study of the mind. One object in Nature is related to all the other objects; and no object can be studied in itself. The very fact of an object being studied shows that it is studied in relation to at least one other, the mind that studies. This is the simplest study of an object that can be conceived, and it resolves itself into this: How does it affect the mind. The amount of knowledge thus obtained is infinitesimal. Thorough knowledge of an object consists in a knowledge of all its possible relations with all other objects.

The study of the mind as we have described above has reference only to its relations with other minds. But this is not all and therefore should not be all. The fact stares us in the face that the relationship of mind to mind is never direct, but always through an intermediate material organization. Whatever in essence mind may be, the fact is too patent to be disputed, that it can only manifest itself to other minds by means of this organization; nay it depends upon that organization for its own growth and development. Hence the necessity of the study of the mind from a new point of view—from the side of organization.

Apart from the difficulties inherent in the nature of a physiological study of mind, other difficulties have been strewn in the path of the scientific inquirer in the shape of objections to this mode of study. Physiological inquiries concerning the mind

have always been and still are looked upon with suspicion. It is feared these inquiries tend to the demonstration of the material nature of mind, which, it is supposed, compromises its diginity, and is incompatible with its immortality, and thus ultimately shakes morality and religion to their very foundations. Hence the opposition to all investigation of mind through the medium of physiology. But this is an age in which the torch of free inquiry has been lighted, never to be extinguished. It is allowed to shed its beams upon every nook and corner of nature apart altogether from the consequences, without a thought as to what might be thus revealed. The religion and the morality that cannot stand the light of knowledge are not worth having, and cannot be of any use to the human race.

But as we shall presently see physiological inquiries do *not* tend to the subversion of morality and religion. In our humble opinion they establish them on surer and stabler foundations than ever. They do not reveal the nature of Mind, but only the conditions of its development, growth, and manifestation.

The material organization upon which the mind depends for its functional activity is the Nervous System. This system in man and the higher animals is a double system, consisting of the sympathetic or organic and the cerebro-spinal. The sympathetic system is concerned in regulating the vegetative functions of the animal, functions which minister to its nutrition and reproduction. We therefore leave it out of our present inquiry.

The ultimate elements of which the nervous system is composed are fibres or rather tubules and cells. The tubules serve as conductors of impressions or nervous energy, and the cells serve to receive, modify, and originate nervous energy. The cerebro-spinal system is composed of a peripheral portion which consists only of fibres, and a central or axial system, called the cerebro-spinal axis or centre, and lodged in the spinal column and cranium. It is in the spinal cord and the brain that we meet with cells and fibres. Three orders of cells are recognized in this system, and are respectively called ternary or simply reflex being those that are found in the spinal cord and the medulla oblangata, secondary or sensory being those which are found in the ganglionic masses at the base of the brain, the tuber annulaire, the corpora quadrigemmina, the thalami optici, and the corpora

striata; and the primary or ideational and emotional which are seen in the cortical portions of the hemispheres. It is well to mention here that each cell receives, is connected or rather continuous with one or more tubules. The nerves of the senses terminate in the ganglia at the base of the Brain. These ganglia are therefore the theatre of all our sensations, and have hence been called the sensory ganglia or in the aggregate, the sensorium commune. From these ganglia emerge fibres which radiate towards the periphery of the hemispheres and there terminate in the cells of the cortex. The cells of the cortex are not heterogeneously scattered but are arranged in layers, of which at least seven have been enumerated by Kölliker, Lockhart Clarke, and others, so that the cortical grey matter is a most exquisite, complicated, and delicate piece of mechanism. The hemispheres of the brain have three well marked divisions, corresponding to three well marked divisions in the skull, and named, the frontal or anterior, the parietal, coronal or middle, and the occipital or posterior. Lockhart Clarke and Schröder Vanderkolk have succeeded in discovering that the nerve-cells in these regions are different in structure and arrangement.

Now it is an irresistible deduction from anatomical structure and physiological evidence as derived from observation of mental phenomena in the whole animal series that the cortical cells of the hemispheres of the brain are the seat of mental life, of ideation, emotion, affection, and volition. Pathological researches and vivisectional experiments have amply confirmed the above deduction. Schröder Vanderkolk has ventured to assert that he "never failed to discover pathological changes in insanity, and that when intellectual disorder specially has existed, he has found the cortical layer under the frontal lobes to be darker-colored, more firmly connected with the pia mater, or softened; in melancholia on the other hand, where the feelings mainly are excited or depressed, the pathological changes were found principally in the convolutions of the upper and hind lobes. In old age when the memory fails, he thinks that the cells of the cortical layers are visibly atrophied."

Thus far anatomists and physiologists are unanimously agreed as to the three primary differentiation of the cerebral hemispheres for the performance of the three primary classes of mental action,

intellectual, emotional, and affective. You are undoubtedly aware that the differentiation has been carried much further, even to the extent of assigning to definite convolutions some distinct function. The person who was the first to inaugurate this minute physiology of the brain was the illustrious Gall. Though physiologists are not yet agreed as to the minutiæ of his system, yet it is unmistakable that evidence is mustering strong in confirmation of it. In fact the primary differentiation we have mentioned above is what accords strictly with the system of Dr. Gall.

One of the profound thinkers of the age, Herbert Spencer, in his Principles of Psychology has observed that, "localization of function is the law of all organization whatever; separateness of duty is universally accompanied with separateness of structure, and it would be marvellous were an exception to exist in the cerebral hemispheres.

"Let it be granted that the cerebral hemispheres are the seat of the higher psychical activities; let it be granted that among these higher psychical activities there are distinctions of kind which, though not definite, are yet practically recognizable; and it cannot be denied, without going in direct opposition to established physiological principles, that these more or less different kinds of psychical activity must be carried on, in more or less distinct parts of the cerebral hemispheres. To question this is not only to ignore the truths of physiology as a whole, but especially those of the physiology of the nervous system. Now there is either some arrangement, some organization, in the cerebrum, or there is not. If there is no organization, the cerebrum is a chaotic mass of fibres incapable of performing any orderly action. If there be some organization, it must consist in that same physiological division of labor, in which all organisation consists; and there can be no division of labor, physiological or other, of which we have any example, or can form any conception, but what involves the concentration of *special kinds of activity in special places.*"

Dr. Richardson's recent researches on the "local independency of nervous function," as evidenced by the subjection of distinct portions of the nervous centres to extreme cold, have remarkably tended in the same direction. As the result of these experiments

it appears to Dr. Richardson "as though the brain were made up of portions of the same matter all united to one organism, but distinctly mapped out into insular divisions each well separated from its neighbour, and having its own duties." "We would be unjust," adds he, "not to allude to the circumstance that by the process of analogical reasoning, the argument of Gall is very powerfully strengthened. If each portion of the nervous system which governs motion is an independent local centre of power, it is a fair inference that each portion of the nervous system governing the mental acts is also an independent centre of power, for it is not probable there would be two methods for the reception of force in one series of organic structure which representing itself as grey or white matter, possesses the same physical characteristic in respect to conduction of force."

The above however is only presumptive evidence in support of the organological system of Gall. It rests more securely upon direct and independent observation, to which we have now to direct our attention.

(To be continued.)

ON THE NECESSITY OF DRUG-PROVING IN INDIA.

By Leopold Salzer, M. D.

[We would call particular attention to this thoughtful and eloquent article. Drug-provings constitute one of the main pillars of rational therapeutics. The only reliable provings we posess are, with limited exceptions, those of Hahnemann and of his immediate disciples. We have inherited this rich legacy and we have profited largely by it. We owe it to the immortal founder of the true science of healing, and we owe it to humanity, to improve and extend this legacy. India not only abounds in "barbaric pearl and gold," but especially abounds in therapeutic resources. Of all countries in the world, we should venture to say, she presents the best opportunities for the display of the god-like qualities of the physician. She may be truly said to be only waiting for the hands of the explorer to make over her healing treasures, which shall serve for the relief of man's estate. Her sons of yore did well avail of the opportunities at their command. As ancient medical writings testify, they had done signal service to humanity by the discovery of the therapeutic properties of indigenous drugs, of course in their own rude way, in the only way, in fact, it was then possible to know. What can be said of the present generation? Have they followed in the footsteps of their ancestors? Have they applied their advanced knowledge to the discovery of the physiological properties of drugs which their own country produces in such abundance, and which properties can be availed of by the light of an unerring law in the treatment of disease? The answer that resounds from all quarters, and resounds to our shame, is No! Is this reproach to continue? May we hope.—Not!—Ed.]

Nations, like individuals, have often the good fortune of seeing themselves unexpectedly enriched with boons, the natural acquisition of which would have required years of hard labor in the one, and centuries of periodical struggles and revolutions in the other case. History relates in shuddering details the sufferings of whole generations in attempting to emancipate themselves from recognised errors and to move towards progress. By a wonderful combination of circumstances the sons of India have been spared all those woeful convulsions which usually mark the social transitory stage. Civilisation in Europe was the work of national calamities; in India it is the work of peaceful institutions. The truths revealed to mankind by scientific investigations had to wander through thousands of errors, in the

western hemisphere and the East got them all at once, within the short space of fifty to sixty years. New trains of thoughts do not so easily pass from brain to brain as material subjects do from hand to hand, and so we find, up to the present time, the higher education-seeking classes of this country, still in the same, or nearly the same position towards their European brethren as fifty years before: the latter spread and *give*, the former *receive* knowledge.

Shall they always receive, and only receive and never think to give? Are they always to enjoy the fruits of the labors of others, without ever thinking of repaying that holy debt, by actively contributing their own share to the increase and growth of knowledge? The idea is as revolting as it would be disgraceful to a nation. Fortunately the supposition in itself involves a matter of impossibility. For it is absolutely impossible for men thoroughly penetrated by any branch of science or art, not to advance those branches, in one way or the other. Already we see some eminent men coming forth, laying their mite of intellectual labor and study on the altar of the progressing sciences, and their number will, no doubt, increase in time. It is on the other hand no easy matter, to add considerably to that vast building of human knowledge, since the very attempt to be possessed of only some of its more important apartments, surpasses the power of an ordinary studious mind. Nevertheless there are still many important subjects in every branch of science and art anxiously waiting for the right man. Here, in India, it is the intimate acquaintance with the different products of that soil which offers a large field of investigation, and promises disclosures, important to the various branches of science and art.

And in this respect, Europe has a right to look upon the enlightened sons of that very soil, for increase of knowledge. It is not the place here, to point to all possible advantages humanity may derive from such laborious investigations, when properly conducted; our present aim is to show how far those labors could be turned to the benefit of Medicine.

When we speak of Medicine, we do not mean that self-styled, regular, "legitimate" and "orthodox" art of healing; that bastard of profound learning and deep ignorance, known by the name of Allopathy; nor do we mean that school of New

Physic, which out of sheer [illegible] therapeutical use of drugs, seeks or pretends to se[illegible]retical rules formed according to physiological laws, and in expectation, the whole relief to be obtained for the sufferer, forgetting or ignoring that each drug embodies not less a whole array of physiological laws, when properly brought into play, be it on the healthy or on the sick. When we speak of Medicine we mean that science and art of healing, the principles and practice of which are based upon a knowledge derived from well-tried, properly ascertained and proved facts; we speak of Homœopathy. This system of Medicine—the only one which deserves the name of a system—requires practitioners to be accurately and minutely acquainted with the pathogenesis of a drug, that is, with all the functional and organic derangements a drug is capable of producing in a healthy person, before going to apply it as a therapeutical agent in a case of sickness. No drug can be properly admitted in a homœopathic Materia Medica, which has not been previously subjected to such strict and reliable provings on healthy persons. It is of little or no avail for a homœopath merely to know, that this drug is a purgative, the other a diuretic, the third an expectorant, the fourth a tonic, the fifth an astringent, etc.; for him it is of the utmost importance to notice the whole array of symptoms evolving themselves, when under the effect of a drug's action, the order in which they succeed each other, and here again in how far the following symptom is a mere physiological consequence of the previous one, or in how far the same is solely attributable to the genuineness of the drug's action. He has further to distinguish between those organic and functional derangements arising in t prover from the drug's chemical action or from its acting in t system by its mere bulk and massiveness, as a foreign body, fro those other derangements caused by the drug's vital affinity t certain organs. The primary and secondary action of a drug form another subject of careful observation and distinction, which again can only be properly studied when due notice is taken of the dose and repetition of the proved drug on the one hand, and of the sensibility, idiosyncrasy, temperament, age, and sex of the prover on the other. In a word the homœopath has to study the pathology of a drug's action in its whole extent and relation before allowing himself to convert his disease-producing agent

into a remedy, a study which can only be cultivated by varied experiments on healthy persons, if we really wish to guard our patients from that onerous "kill or cure"-treatment, or from that other "leaving to Nature"-treatment, which helplessly looks upon the various sufferings of mankind, in the face of all the remedial provisions Nature has disseminated throughout the world.

The flora of India is immensely rich in drugs of its own. The Kavirájs have for thousands of years practised Medicine through their agency, and it cannot be denied that they did effect and still do effect cures, where the regular system of treatment proves impotent. We have even lately seen the government of India introducing these indigenous drugs into public dispensaries for the sake of economy. But what will easily do for Allopathy, cannot so easily be done for Homœopathy. The allopath uses a purgative for the purpose of mechanically evacuating the bowels, every substance which will fulfil this object is a welcome agent for him to remove, momentarily or palliatively, a state of constipation. The homœopath who, by contrast, seeks to remove constipation, by such drugs which would produce on the healthy a similar state, will only then succeed, when the similarity between the pathogenesis of the drug and the idiopathic state of the patient coincides with their respective pathology. Constipation may arise from an irritable and spasmodic state of the colon (Nux V., Ignat., etc.); or from an unusual sluggishness of the muscular coat (Opium, etc.); or from a subparalytic state of the muscular fibre and motor nerves (Plumbum, etc.); or it may be caused by, or be connected with a deficient secretion of bile (Merc., Opium, etc.); or by a deficiency of the secretion of the intestinal fluids, thereby causing a dry state of the bowels, (Alumina, Plumb., etc.) These few enumerations may suffice to shew the necessity of a more intimate acquaintance with a drug's physiological action on the part of the homœopath, and as a consequence, the necessity of provings.

When we remember what has been done in America during the last twenty years in this respect, we cannot help looking upon the Flora of India as a second therapeutic treasure, which waits—we had fain said anxiously waits—for explorers. What shall ultimately become of all those indigenous drugs? shall they, for want of provers in this country, be sent to the different

homœopathic societies of Europe or America? We do not hesitate to say: such an eventual necessity would be simply a disgrace to a nation, which claims, in the name of education and civilisation they have received, equal rights and equal respect with any other civilized nation in the world. It might be going too far, eventually to blame a whole nation for a fault, which could, under any circumstances be committed by a very small part only since it is no secret that Homœopathy has not yet found its way to the masses of the people. Still there are thousands and thousands here, and they mostly belong to that class, to whom European progress is accessible, to the enlightened and advanced portion of the nation, who intellectually represent indeed the nation to which they belong. Should it be impossible to find amongst those thousands of amateurs, patrons and practitioners of Homœopathy, ten or twenty persons, who would be ready to come forward and sacrifice a few days or hours of convenience, for the sake of that art which so highly interests suffering mankind?—Or should it be want of courage, which would deter them from empirically subjecting themselves to the action of an unknown drug?

In urging the provings of new drugs we are fully aware, that there are some members of our profession, who are strictly opposed to any proceeding of proving new drugs. They argue, that the number of medicines proved and in practical use, is already too great to be properly embraced and retained by the memory of any practitioner; that in attempting to *enlarge* our knowledge of drugs by the perpetual research after new healing agents, our knowledge in this respect must in the course of time, necessarily lose in depth, in the measure as we are gaining, or believing to gain in extensiveness and enlargement; that we should therefore try to restrict as much as possible the number of our remedial agents, in order to be enabled to have full and thorough aquaintance with the many-sided physiological and healing virtues of each of them. Well founded as this argument undoubtedly is, its advocates have nevertheless heartily welcomed at every time, such new remedies, or rather such newly proved remedies as have been found of a general and practical value to the physician. They prescribe just as often as others, lam. virg., podoph. pelt., actea rac., glonoine, etc., and they

do not even hesitate to confess they have found one or the other of these remedies actually indispensable in certain cases. The fact is, the danger alluded to by the advocates of the above mentioned principle, does not lie in the process of proving drugs; but in their therapeutical virtues being, as a rule, extolled by the painstaking prover, thereby misleading many a practitioner to abandon his long established experience for a novelty's sake. And there is another fact of not less importance, connected with the whole affair of drug proving consisting in this, that we often have to prove ten drugs, before we might hit upon one, the pathogenesis of which is worth recording. But all this cannot do away with the laudable attempt at bringing to light the true and reliable curative qualities of clinically unknown drugs, since there is, and there can only be one rational method of eliciting their healing virtues, the method, namely, of ascertaining beforehand their physiological action on healthy persons.

All of us know that India is sadly rich in diseases of her own; she has at the same time a rich and varied flora of her own, that is to say, her soil *spontaneously* produces plants which are not found to grow in the same way, in any other part of the world. Considering that these plants undoubtedly embody healing virtues in many diseases, should there be no connection between these two phenomena of a peculiar type of diseases and a peculiar type of drugs simultaneously and exclusively existing at one and the same place?—Let us hear what Teste in the introduction to his Materia Medica has to say on this subject. "The more we investigate the general relations of our reputed drugs with the disease to which man is subject, the more we are struck by the curious circumstance that it is precisely in the districts where certain pathological affections prevail, we meet, by some admirable arrangement of the Creator, an abundance of the substances which are most capable of curing them. This coincidence may only be the necessary result of climatic hygrometric, or telluric influences which, acting simultaneously upon the plants, animals and men of one and the same region, create in them certain elements of similitude, of which the *similia similibus* explains to us the consequences in the pathological order. Let these coincidences be accounted for in any manner you please, what seems to me irrefutable is, that it

exists. To cite a few examples, the *bitter-sweet*, which is so often successfully given for the effects of a temporary or prolonged stay in a cold and damp atmosphere, prefers damp and cool localities. The *wolfs-bane*, on the contrary, which grows on mountain-tops, corresponds, as is well known, to inflammatory fevers and acute phlegmasias, to which the inhabitants of mountainous regions are particularly exposed in consequence of the habitual vigor of their constitution and their sanguinous temperament. Whilst the *Nux Vomica* which is so often given with success for dysentery and bilious affections, grows in the East-Indies, the classic home of these kinds of affections, we derive from the North-east of Europe where the scrofula is indigenous, the *wild pansy* whose efficacy in this disease has been so often verified. *Copaiva* is perhaps the only remedy with which the plica polonica has ever been cured, and this drug is nowhere more abundant than in Poland. The *cedron*, which is an admirable antidote against the poison of the crotalus and the coral snake, grows almost exclusively in regions inhabited by these dangerous reptiles, etc.* But should we conclude from these facts, which it would be easy for us to multiply to an infinite extent, that each of our drugs is exclusively adapted to the endemic maladies of the countries whence it is obtained, or at most to individuals whose constitution is identical with that which is generally possessed by the inhabitants of these countries? This question, however strange it may seem at first, is nevertheless of a high interest." And in a note he adds: "*Arsenic* and *veratrum* have both frequently cured the cholera, the principal symptoms of which they contain. But what class of patients have been principally cured by veratrum *which comes from the north of Europe and grows on mountain-tops?* Patients with a sanguine temperament, quick, lively, and not having been weakened by a long attack, like those who were principally cured by *arsenic*." To which we may add: the growth of the cinchona tree in regions where fevers are predominant.

This marvellous coincidence might find, as hinted by Dr. Teste, in the law of *Similia Similibus Curantur*, its true explanation. Every drug is, by virtue of its pathogenesis, the representative of a certain

* We have tried, at two different occasions, to antidote the effects of cobra-bite by the same drug but with no result.

disease. There is then a latent force embodied in every drug-substance, which force will be set free the moment its embodying molecules are properly brought into contact, with those cells which compose the living human body. The effect of that force will be a functional derangement of those organic cells which are most affected by the contact of the drug, and consequently a manifestation of a morbid state in the formerly healthy system; the force itself therefore is of a morbific nature. Such morbific forces however we often likewise find lodged (in what bodily form we know not) within certain regions of the globe, producing a definite type of disease. At first sight those two morbific forces, although analogous in their effects, that is to say, although respectively creating similar affections, appear to be quite independent from each other; and we do not hesitate, in common parlance, to designate the one as a toxic and the other as an idiopathic affection. At first sight! By a somewhat less superficial consideration we are however often led to the discovery, that both forces strangely meet just at one and the same district of land. All the drugs cited above are, as we know from our provings, homœopathic to those diseases which they cure; thus the *bitter sweet* which prefers a damp cool locality, and which is so often successfully given for the effects of a temporary or prolonged stay in a cold and damp atmosphere, *produces* in a healthy person a diseased condition similar to that arising from a stay in such a locality; so does *Nux Vom.*, which spontaneously grows in the East Indies—the classic home of bilious affections—*produce* this kind of affection in the healthy, and cures them in those idiopathically affected. The same may be said of all the other examples cited above: we have only to recur to the Materia Medica Pura in order to gain the conviction that they cure by their homœopathicity to the species of diseases in question. There is then, properly speaking, a coincidence of phenomena with respect to certain diseases prevailing in some districts, and certain plants spontaneously growing within those districts:

I. The coincidence between the existence of certain (apparently) idiopathic diseases and the existence of spontaneously growing plants, harbouring a pathogenisis similar to those diseases, in one and the same region of the globe;

II. The coincidence of a certain type of diseases spontaneously arising in some districts, with the spontaneous growth at the

same places of such plants which prove curative to those types of diseases;

III. The coincidence of two qualities within one and the same plant, to produce in the healthy and to cure in the sick the same train of affections.

From the first of the above mentioned coincidences we may learn, that the different morbific forces predominating in certain climates must have more or less to do with the spontaneous growth of those toxic plants of a similar pathogenetic character; since they both meet, yea sometimes exclusively meet, in the same region of the globe. The climatic conditions which generate a peculiar type of diseases must, in other words, be just the sort of conditions under which the spontaneous growth of those toxic plants is possible.

We do not consider it even as going too far to presume, that, plants of the above description may, by their growth and development act derivatively, with respect to the morbific climatic influences. It would be for instance a matter worth noticing if, and in how far, febrile diseases have been altered with respect to their frequency, intensity, or the mode of their occurrence in that district of Darjeeling neighbouring the Government. Plantations there. Leaving however all vague speculations aside, there are facts sufficient to shew that there are climatic influences so natured, as to produce a definite type of disease when playing upon men, and to produce at the same time and place plants harbouring a similar type of diseases when playing upon vegetable germs. Since, on the other hand, the coincidence mentioned above as the third is no less an established and general fact; the apparent marvel of the coincidence II resolves itself into a natural consequence of the two others. It is in this sense we understand the above quoted passage, running as follow: This coincidence may only be the necessary result of climatic, hygrometric or telluric influences, which, acting simultaneously upon the plants, animals and men of one and the same region, create in them certain elements of similitude, of which the *similia similibus* explains to us the consequences in the pathological order.

It is more than probable that the Indian flora contains specimens, which would best be adapted to cure those diseases peculiar

to this country. Will there be found, in that very same country, specimens of men, ready to subject themselves to provings of the drugs of their own soil?—The answer lies with those who are, or ought to be, most concerned in the question.

A SKETCH OF THE TREATMENT OF CHOLERA.

(Continued from last No., p. 135.)

V.—The Stage of Sequelæ. It is usual to consider the sequelæ under the head of Reaction. But as they are developed after reaction, and as reaction is not necessarily and invariably followed by them, we have formed a distinct stage of them.

The treatment of the sequelæ taxes in the highest degree the judgment and discrimination of the practitioner. Hope is naturally aroused in the mind of the patient as well as of those around, when reaction succeeds collapse. And certainly it is a great disappointment if reaction, instead of being followed by recovery, terminates in death. This would look like a storm-tossed vessel being wrecked when about to be brought to the harbour. It is therefore absolutely necessary that we should be thoroughly acquainted with the pathological conditions which may be developed after reaction is established, not only that we may the better grapple with them, but likewise that we may not be taken by surprise, when an unfavorable result happens.

The sequelæ are the morbid affections or diseases which become developed after the system has recovered from the collapse. They are due either to the ravages of the disease itself, or to the treatment adopted for the subdual of the disease, or to both these causes combined. The forms which they assume are in general the expression of an original, inherent weakness of the organism in all or some of its parts. Thus if the brain has been the weakest organ, it suffers most; if the lungs, they will suffer most, and so on. Or the drugs used might determine the organ which is likely to become most affected. Thus the use of narcotics in excess might cause the cerebral organs to suffer most; the use of astringents might give rise to suppression of the natural secretions; the use of stimulants might determine congestion or even inflammation of the lungs; and so on.

Apart from the shock which the nervous system receives, the most obvious and the most dangerous effect of the disease is the draining away of the water of the blood. The water carries off with it the salts but not the albumen of the serum. The blood, therefore, that circulates in the system, becomes thicker in consistency. This circumstance must greatly interfere with its passage through the capillaries. This is aided by the loss of tonicity of the capillaries themselves, chiefly owing to depression of the sympathetic system. Hence the congestion of all the viscera as a grand sequela of the disease. This congestion necessarily interferes with the functions of the viscera. Thus the liver fails to secrete the bile, the kidneys to secrete the urine, the stomach to secrete the proper gastric juice, the intestines their own juices, the lungs to aërate the blood, the nervous centres to properly control the parts over which they preside, and so on.

There is, then, more or less congestion in all the organs in every case of cholera; but it is not in every case that congestion in every organ amounts to appreciable disease. One organ or another becomes the seat of diseased action according to its own idiosyncracy, or according to the direction given by treatment.

It is true that the sequelæ of cholera consist chiefly in congestion of the various viscera; but we must remember that this congestion is with an impoverished and a poisoned blood. The blood is impoverished, having become deficient in some of its essential salts; it is poisoned, having become surcharged with certain constituents which require elimination, but which owing to the paralysed and congested condition of the organs by which they are eliminated, have not been eliminated by them since the full development of disease.

The organs, that become affected, and which claim our attention for the diseased action lighted up in them, are, very nearly in the order of their importance, the brain, the kidneys, the stomach, the colon, the small intestines, the liver, the lungs, the buccal cavity, the eyes, the skin, the reproductive organs.

The most frequent and the most formidable sequelæ are the affections of the brain and the kidneys. It is generally supposed that the cerebral derangements are consequent upon and secondary to suppression of the urinary secretion. We believe how-

ever that the brain and the kidneys suffer primarily and simultaneously in the first instance, and that subsequently they react upon each other. The re-establishment of the renal secretion, which opens out a safety-valve for the elimination of the urea and other deleterious products of tissue-waste, very often succeeds in relieving the cerebral organs. Hence it is that after the subsidence of the violent symptoms, the purging, the vomiting, and the collapse, the first thing, that is most anxiously and with just concern looked for, is the appearance of the urine. Nevertheless it is not invariably that the restoration of the functions of the kidneys is followed by clearance of the cerebral symptoms, which may go on increasing to the extent of culminating in death, in spite of copious emissions of urine. This proves one of three things, either that the brain has been indepedently affected, or that its derangements have proceeded so far as not to yield to depurating processes going on in the blood, or that the urine secreted is simply the water exuded from the blood, and does not contain its proper constituents.

Next in order of frequency, (under ordinary, allopathic treatment,) though not the next in point of gravity, are the derangements of the digestive apparatus. Hiccough, retching, bilious vomiting and diarrhœa, tympanitis, even gastritis, enteritis, and dysentery, these are the various forms which these derangements assume. Considering the rapidity with which the digestive organs, which have been the focus as it were of the disease, resume their normal state and functions, we are strongly inclined to believe that the gastro-enteric derangements which follow the reaction of cholera are chiefly due to the treatment adopted; and we are confirmed in this view by the fact that these derangements are rare occurrences under homœopathic treatment.

We have next to direct our attention to fever of an adynamic type which not unfrequently sets in after reaction, which, in fact, is an exaggerated form of reaction, being only an expression of an abnormal excitement of the circulatory system. This fever may be *sui generis* or an accompaniment of congestion of the viscera. The latter, however, may be present without there being any fever associated with it, and *vice versâ*. Nevertheless in treating this fever, it is necessary to institute a searching

examination of all the organs in order to detect any congestive or inflammatory process that may be going on in them.

Asthenia, though not a very frequent, is nevertheless almost invariably a fatal sequela of cholera. It seems to be a continued imperfect reaction. It is indicative of a most profound depression of the nervous system. The patient, in spite of the food that he takes and apparently digests, not only does not improve, but day by day loses ground, becomes weaker and thinner, till at last he dies as if of inanition. In the course of this, abscesses form in various parts of the body, the corneæ become ulcerated and ultimately slough out. The first sign of asthenia in a cholera patient is a congestive condition of the conjunctivæ associated with want of lustre in the corneæ, the lower margins of which will be found, on close inspection, to have become whitish, and either already invaded by an ulcer or about to be so. In females, in addition to this state of the eyes there is very often hæmorrhage from the uterus. The parotid glands seem to be the first to suffer from the suppurative process set up in the economy. Bed sores as a rule are formed on the nates. They also form over the scapulæ. In the worst cases, these parts become sloughing and even gangrenous. The mucous membrane of the oral cavity becomes red and ulcerated. The gums become spongy and swollen, and blood may ooze out, and even hæmorrhage take place from them. Cancrum oris is not unfrequently met with, and most especially in cases where calomel has been largely used.

In the treatment of cholera, in all its stages, but especially in the stage of sequelæ, the practitioner should bear in mind one circumstance which has an important bearing upon the disease and therefore necessarily upon the management of it. This is the probable complication of the disease with the existence of worms in the intestinal canal. This is a most troublesome, and often, especially in young children, a most dangerous complication. In Bengal this is a most frequent complication too. Of late years helminthiasis figures largely in the statistics of disease this country. It would seem that hardly any native of Bengal is free from intestinal parasites. A single dose of santonine would, we are sure, expel at least half a dozen of lur[illegible] from any one's bowels. We do not know to what

particular cause to attribute this. We believe it is due to bad drinking water aided by the immoderate use of sweet meats. It is a notorious fact that water in Lower Bengal, whether of tanks or of streams, has sensibly deteriorated.

After the above rapid sketch of the sequelæ of cholera, we now proceed to consider their treatment.

As a preliminary to all treatment it is necessary to bear in mind the condition of the blood mentioned before. To enable the vital fluid to supply their proper pabulum to the organs and tissues its normal composition must be restored, the water and the salts that it has lost must be supplied. The water is easily supplied, and one of the salts, chloride of sodium, may be best supplied with the food now appropriate, namely arrow-root, sago, or barley water. These may be agreeably salted, instead of sugared, or sometimes salted and sometimes sugared. The carbonate of soda may be administered in common bottled soda water (a misnomer for carbonic acid water), which will have the additional effect of soothing the irritated stomach. We have seen the introduction of chloride of sodium to have a charming effect. It seems to restore animation to the whole economy, the organs resuming their functions much more easily and rapidly than they would otherwise do. There is a limit, however, beyond which the chloride of sodium and the carbonate of soda will not be tolerated, and it is necessary to closely watch this, that they may not be pushed to the extent of producing mischief.

(I.)—TREATMENT OF THE URINARY AND CEREBRAL DERANGEMENTS.

Almost all the remedies, that are used successfully against the full development of the disease, have, as one of their distinctive pathogenetic effects, suppression of the urine. Hence in the most favorable cases their employment is not only followed by improvement of the chief choleraic symptoms, purging and vomiting, but also by the rapid restoration of the renal secretion. This happy result, however, very seldom takes place in the malignant varieties of the disease, and in these cases we have to stimulate the kidneys to action by other remedies than those employed during the full development of the disease. The remedy upon which homœopathic physicians chiefly rely to bring about this desirable end is—

Cantharis: This drug is useful both in suppression and in retention of the urine; and may be depended upon even when uræmic coma, delirium, and convulsions have taken place.

Terebinthina (turpentine) is another drug closely analogous to *cantharis* in its action upon the genito-urinary apparatus, and may be had recourse to with benefit when the latter has failed to act upon the kidneys.

Spiritus etheris nitrici is the drug upon which allopathic physicians chiefly rely in suppression of urine in cholera. Though not so frequently successful as the remedies mentioned above, it has sometimes succeeded in cases where the latter had failed, and therefore should not be forgotten by the homœopathic physician. It need not be exhibited in the large doses ordinarily employed. Five drops every 10 to 15 minutes would be quite enough.

If the urine is not secreted under the action of these remedies, or if in spite of the secretion of the urine, the cerebral symptoms do not improve, then we must have recourse to other remedies which have more direct influence upon the brain. *Belladonna, hyoscyamus, stramonium, opium, cannabis,* and *cicuta virosa,* are the drugs chiefly relied upon. The differential indications of these drugs may be gathered from their pathogeneses. Belladonna, hyoscyamus, and stramonium are close analogues one of the others, nevertheless there are shades of difference in their physiological actions which point to them as remedies in distinct conditions. We employ—

Belladonna, when the condition of the brain is that of active congestion,—when the cerebral derangements are due not simply to irritation of nerve-tissue, but to determination of blood to the nerve-centres; when there are blood-shot eyes, fulness and throbbing of the temporal arteries, flushed face, &c.

Hyoscyamus, when the cerebral derangements are mere perverted function dependent upon simple irritation of nerve-tissue without any hyperæmia of the parts.

Stramonium, when the delirium is of the maniacal description, characterized by furor and a great tendency to bite. *Stramonium* seems to stand midway between *belladonna* and *hyoscyamus* in causing determination to the encephalic centres, but above all in producing irritation of nerve-substance.

Opium is best indicated where there is great depression of the cerebral centres, more coma than delirium, and when there appears to be absolute insensibility to the action of medicines.

Of *cannabis indica* we have no pathogenesis in the *Materia Medica Pura*. We have employed it with success in cases characterized by a comatose condition, mild delirium, and involuntary itching of the body, especially of the genitals—a peculiarity we have invariably found in hemp-smokers of this country. If ever that peculiar condition, known as catalepsy, be developed, *cannabis* would be the best remedy for it.

Cicuta virosa is very useful in cases characterized by sopor, convulsions, and staring or up-turned eyes. We should have said before that *cicuta* is also useful in the stage of full development of the disease, of the spasmodic variety, especially when the pectoral muscles are the seat of the spasms, so as seriously to compromise the respiratory function. *Cicuta* would be particularly useful when worms are the cause of the nervous symptoms.

(II.) TREATMENT OF THE GASTRO-ENTERIC DERANGEMENTS.

Hiccough is one of the most troublesome of the gastric derangements, but fortunately we have in the homœopathic materia medica a host of remedies which cover this symptom. We can indicate only a few of the most prominent of these—to give the indications of all would require more space than we can afford to spare.

Belladonna, for repeated attacks of violent hiccough; for hiccough which causes the patient to start up from bed, and makes him deaf till the next paroxysm; for nightly hiccough with sweat; and for hiccough that is followed by convulsions of the head and limbs, which again by nausea and lassitude.

Cicuta, for sounding, clangous hiccough.

Hyoscyamus, for hiccough with spasms and rumbling in the abdomen, or with involuntary micturition and foam at the mouth.

Carbo Veg., for hiccough during every motion.

Agnus, for hiccough with ill humour.

Pulsatilla, for hiccough with suffocative paroxysms, for hiccough during sleep, or after drinking, or when smoking.

Staphysagria, for frequent hiccough attended with nausea and stupefaction.

Phosphorus, for hiccough after eating, so violent that the pit of the stomach feels sore and aching.

Ignatia, for hiccough after eating or drinking.

Sulphur, for hiccough with pain behind the palate.

Besides the above we must particularly consult *aconite*, *arsenic*, *bryonia*, *cuprum*, *lachesis*, *nux vom.*, *veratrum*, and *zincum*. Cases will turn up which will prove so obstinate as to resist even the most nicely-selected remedy. Under these circumstances we must not forget the application of mustard plasters to the epigastrium, the exhibition of chloroform in doses of 5 drops every 15 to 30 minutes, and even the hypodermic injection of morphia. It will so happen that when the homœopathic remedies taken by the mouth fail, they will succeed when introduced into the system by the hypodermic syringe.

If in spite of the above measures the hiccough continues, we may be almost sure that it depends upon the presence of worms in the stomach. If the patient's strength would permit we should try to expel them, and the best means of doing this would be to encourage vomiting by draughts of tepid water slightly salted. If this cannot be done we should try *cina*, lime-water with milk, or even santonine.

Nausea and vomiting are another set of troublesome affections. They are the expression of an abnormal irritability of the stomach depending, in the great majority of cases, upon an excessive secretion of its own juice, as well as upon the regurgitation of the hepatic secretion into it. Hence the matters vomited in this stage are acid and bilious. In such cases *ipecacuanha* and *nux vomica* are quite competent to effect a cure. *Ipecac.* is preferable when nausea simply prevails, *nux* when along with nausea there is vomiting. *Ipecac.* failing may be followed by *nux*, and *vice versâ*. When both these remedies fail *podophyllum* is likely to be of service. When vomiting has this peculiar characteristic that it takes place immediately after each draught of cold water, *eupatorium* is the remedy. When the water drunk is thrown up after it has lain some time, so as to become warm, in the stomach we should try *phosphorus*.

If notwithstanding the exhibition of the previous remedies, the vomiting continues to be distressing, we should not hesitate to try *carbonate of soda* with soda water, which will have the

double effect of neutralizing the excessive acid secreted in the stomach, as well as of soothing its irritated nerves. In very bad cases *hydrocyanic acid* should be thought of. The exhibition of chloroform internally, and counter-irritation with it externally over the epigastrium, are often, in very intractable cases, attended with benefit. We believe both hydrocyanic acid and chloroform act on the homœopathic principle, though as yet we are not in possession of their full-length pathogenesis to enable us to select them as we do other attested homœopathic remedies. But on whatever principle they may act, this is certain that they act beneficially in the conditions for which we have recommended their use, and the interests of our patients require that we should not neglect them.

When the vomiting is the expression of an inflammatory or sub-inflammatory condition of the stomach we should treat it as such.

(To be continued.)

BARON LIEBIG ON THE NUTRITIVE VALUE OF THE DIFFERENT SORTS OF FOOD.

The series of papers by Baron Liebig on the nutritive value of the different sorts of food, recently published in the *Lancet*, ought to be more widely read in India than in Europe. If the subject of Dietetics is generally overlooked in the countries most advanced in civilization, as Baron Liebig complains, it is grossly neglected in Hindustan. The Vaids and Hakims do set, it is true, a high theoretic value upon suitable food, but their ignorance of Chemistry and Physiology, as these are now understood in Modern Europe, renders it perfectly useless. The European Physicians and Surgeons are little acquainted with the food usually consumed by the natives: consequently much value can hardly be placed upon their advice in this matter. And as to the medical practitioners trained up in the local medical institutions from whom much is expected in the way of sanitary reforms, we fear we must confess, that their attention has not yet been directed to the subject under notice, in a way commen-

surate with its real importance. Under these circumstances, we are persuaded that a notice of the papers now before us, will be of great service to the native community at large, even though the members of our own Profession may not reap much good from it. Our main object in this article is to condense within a short compass all the essential facts which have been brought together by Baron Liebig. Most of these facts are not new to the profession, but they are very apt to be lost sight of in practical life. The subject of diet seems to have engaged the close attention of Hippocrates, the oldest physician known to the European world, as the following paragraph from his work on the Origin of Medicine will shew; and had physicians since his time set the same value upon this subject, it would never have remained in the state of uncertainty that it now is:—

"And this I know for certain, that the quality of our food and of bread exercises great influence on the health; and how can he who does not heed this, or does not understand this influence, understand the diseases which attack man? It seems to me necessary, therefore, that the physician should be acquainted with nature, and strive, if he will fulfil his duties, to discern what man is in relation to his food and drink and his occupations, and how his food affects the individual person. If the same nourishment were fitted for the patient as well as for the man in health, nobody would have sought for medicine. To know what food is proper for the sick, this it is which constitutes the physician."

The first simple facts with regard to the animal economy which have been indisputably established are that the animal body has warmth, which it emits continually, and that the amount of daily work which it might be said to perform, voluntary as well as involuntary, causes it to lose a considerable amount of force as well as several of its constituent parts.

The circulation of the blood, the motions of the respiratory organs, and the worm-like motion of the organs of digestion, are examples of involuntary motion. The mastication of food, the motions of limbs and of the other parts of the body, in all occupations including exercises, physical as well as mental, are dependent on volition. The waste thus produced in the animal body would cause it to wither and decay, but for the air, water and food it takes in. These three things then in suitable states, are essential to the growth and sustenance of our body, and

"hunger is the inner admonisher that tells us there is something wanting within the body, and that we must supply the deficiency." Of these three essentials of life, food is the subject of the present article, and we must accordingly confine ourselves to it alone.

Food serves to generate warmth and force, as also to form and increase the quickened parts of the body and to reproduce those which are worn out. It is in fact the chief means "by which all occurrence, in the organisation of the body, all its multifarious manifestations of vitality are brought about"; and according to the way in which it is regulated, the period of decay and death is hastened or retarded—"hastened if the nutrition be deficient, retarded if all the inward parts, as far as this is possible by human care, are kept in a proper condition."

The food of man as well as those of other animals, contain three classes of nutritive substances, albuminates, respiratory or heat-giving substances, and nutritive salts. Albumen is the component part of the blood, which is the material of all the animated and plastic parts of the body, and becomes solid when heated. The albuminates are identical or nearly identical, with the albumen of blood. They contain "a group of substances found in plants, partly in solution in the juices, partly deposited in the seeds, and which are found in the greatest quantity in the cereals." The albumen of the blood is formed from them; and so they furnish the material for the formation of all the plastic parts of the body. The albuminates are distinguished from the other organic substances by having an abundance of nitrogen and certain quantity of sulphur. "The cheesy substance (casein) of milk, syntonin, the principal component part of the muscles; albumen, or that part of vegetable and animal juices which is soluble (?. sic.) in heat; gluten of the cereals; vegetable casein in peas, beans and lentils (legumin), all belong to the group of albuminates."

The respiratory or warmth-giving substances are free of nitrogen, such as fat, starch, sugar of milk, &c., and are applied in the vital processes, principally—and in part exclusively—for the generation of warmth. The nutritive salts remain in the form of ashes when the articles of food are burned: phosphoric acid, potash, soda, lime, magnesia, iron, common salt, sulphuric acid are

their chief elements. These three classes of substances do not give nourishment by themselves separately, but only when they act in co-operation. They are present in suitable mixtures in meat, milk, and bread.

This three-fold division of food is still maintained by Baron Liebig, aud he cites several intances to prove its validity. The distinction between nitrogenous and heat-producing substances he supports by citing the experiments which Dr. Parkes conducted with two perfectly healthy and strong men. After a walk of fifty six and a half miles, performed in two days, these men, though well fed on substances containing carbon, fat, starch, &c., lost in weight four pounds and one pound and a half respectively; and it took them four days, with the aid of abundant meat food, to regain their original weight. Baron Liebig makes the following remarks on the above mentioned experiment:—

"As both men had enjoyed heat-producing food in abundance and as purposely all victuals were avoided which could possibly have caused the formation of muscle, the loss in weight could only have been produced by the diminution of the musculatory mass in the body. Had the loss of weight been caused by a loss or evaporation of water, the original weight would soon have been restored by drinking a few glasses of water, but the slow restoration of the lost weight, and the necessary co-operation of food, show that the formations which in their natural state had retained the escaping water, now no longer existed.

"In order that the muscular mass, or what is the same thing, in order that the working powers of an individual may be kept up, it is absolutely necessary that in his daily food a quantity of albuminate be consumed sufficient to make up for what is lost. A greater amount of work is not to be attained, for a continuation, without a greater amount of food, especially not without a larger amount of albuminate in the nourishment taken."

It will appear from the above that Baron Liebig sets a higher value upon the albuminates. "It is possible indeed," he says further in another place, "in the process of nutrition to supply the place of the heat-generating substances such as starch, sugar and fat, by means of meat, but not *vice versa;* because the heat-generating substances are quite incapable from their composition of serving to aid in the structure of the body, and therefore it may be said that the albuminates possess a pre-eminent value."

It is needless to mention that the above theory of Baron Liebig is controverted by other physiologists both British and continental, and that some of the most careful experimenters believe "that a given development of force, expressed in animal heat, muscular work, and mental exertion, may be the effect of several, perhaps many, supposable supplies of digested food, farinaceous, saccharine, fatty and albuminous," and that the "blood itself is the seat of all the chemical changes that develops force in the body." It is not our purpose at present to plunge ourselves into this controversy. The latter opinions, however, have found more favor from us, and are gaining more and more ground as further investigations are being made by the most advanced physiologists of the day.

The albuminates and the nutritive salts perform distinct functions in the animal economy, and when the former are present, the latter are not so necessarily. Hen's egg—any egg in short—furnishes a striking example in this respect. Meat is able to support the life of a carnivorous animal, but not so the eggs. "A dog eats the egg, but does not digest it, and in presence of a dish full of boiled albumen, or boiled yelk of eggs, or of both together he will die of starvation." This fact is well known to chemists and physiologists, and Baron Liebig accounts for it in the following paragraphs:—

"The nutritive salts of the egg contain, to 100 parts phosphoric acid, 38 parts potash; meat equivalent to the same quantity of acid, contains 140 parts potash, being 102 parts more. The egg contains lime, it is true, but not enough by far for the formation of the skeleton of the animal. In the nutritive salts of meat the phosphoric acid is neutralised; in those of the egg, on the contrary, is 30 per cent of free phosphoric acid. Now from the egg blood ought to be formed; but blood is an alkaline fluid. Meat, in the nutritive process, is converted into alkaline blood; the egg, on the contrary, can only form blood of an acid reaction, which is incompatible with the organic processes; nevertheless, free phosphoric acid is a necessary condition for the development of the animal. The fact is, that during the brooding time, the free phosphoric acid dissolves the carbonate of lime of the shell, which thus gets always thinner and thinner, and is at last not thicker than a sheet of letter-paper. Phosphate of lime is thus produced, and with it the material hitherto wanting for the formation of the bony scaffolding of the body—of the skeleton; and as the free acid is gradually neutralised and used up by the lime, the blood receives the alkaline quality proper to it.

"Thus then, in the egg the building up of the animal is provided for in the wisest manner. By means of the shell it receives the full nutrition required for the development of the embryo, and is also nutritive for man when taken with other food whose component parts are fitted to neutralise the free acids or to supply the place of the missing alkalies. If we compare the egg with milk, we find the latter is so composed that we may look upon it as a solution of the egg and the eggshell together.

"The correctness of these conclusions is easily proved as regards meat. If raw or boiled meat be well soaked in cold or hot water, it loses with the soluble salts (phosphates) which the water draws out of it, its nutritive value. The residue of the meat will not be eaten by any animal, though, perhaps, if it is mixed with a little fat, an inexperienced young dog, when very hungry, will allow himself to be deceived and eat of it, but a second time he is sure not to do so. In the soaked meat the necessary conditions for its digestiveness (the nutritive salts) are all wanting."

The food of man along with those of other animals serves four purposes 1.—maintainance of the system, 2. supply of the daily waste, 3. growth, 4. storage of food within the body. The character and extent of the wastage is dependent upon the nature of the work in which the man is engaged. Hence the great difficulty in the selection of food proper for each individual even when in health; and the difficulty is considerably enhanced in the diseased state. The latter question however has not been handled by Baron Liebig. Neither is his treatment of the former elaborate. He has collected a mass of materials, and the chief service he has rendered consists in having pointed out the mistakes which are often committed in practice, in ignorance, or rather in spite, of the well-known facts which Physiology teaches. The different quantities of albuminates required by persons following different professions are fully illustrated. A wood-man in the the Bavarian highlands, for instance, consumes in winter about 130 grammes of albuminates. A worker in a Munich brewery takes in from 160 to 170 grammes. For a soldier in time of peace, 125 grammes are enough to maintain him in health; but in war time, when he has to undergo a great amount of labor and privations, he requires at least from 140 to 148 grammes of albuminate. "The English navvies who were sent out during the Crimean war to make the Balaclava rail-road, and who astonished both English and French soldiers by the extraordinary amount of work they performed, consumed daily from 150 to 159 grammes of albuminate."

About the fatty or heat-generating substances Baron Liebig says as follows:—

"With regard to the organic work by which the heat-generating substances are fitted for generating warmth, the same relation exists between starch, sugar, dextrin, fat, and alcoholic beverages. Starch demands the longest work; it requires more time and more additional juices which the stomach must secrete, in order that it may be fitted for passing into the blood, than sugar and dextrin, which are both of themselves soluble in water. Thus the higher value which flour possesses for making bread is explained. By its porosity bread is more easily penetrated by the gastric juice, and is soon amalgamated, because a part of the starch in the flour has already undergone a transmutation into dextrin, or some other similar easily—soluble matter. Fat is slowly received into the circulation, but its effect is of longest duration. Fat food is most fitted for winter, starch and saccharine nourishment for the summer. Beverages abounding in alcohol act, as regards the generation of warmth, the quickest of all."

As stated above, the three classes of substances contained in in food are required in certain proportions for the proper nourishment of man. This proportion is nearly maintained in several of our articles of food, as they exist in nature; but the process of cooking serves to destroy this admixture and to eliminate some of the substances necessary in our system. In salting meat for instance, "a certain quantity of nutritive salts pass into brine." Hence it is that "fresh roasted pork has a greater nutritive value than raw ham, and this latter, again, a higher value than boiled ham." In boiling vegetables a similar loss of potash and phosphoric acid takes place. Thus it is that roasted potatoes are more nutritious than boiled ones. But of all substances used as food for man, corn undergoes the greatest change in its nutritive value when converted into flour. In 1,000 parts of rye and wheat corn are contained 21 parts, in weight of the nutritive salts, but in a like quantity of rye flour only 12 parts of the nutritive salts, and in wheaten flour only 7. The effect of this difference is well illustrated by the following extract:—

"One of the most excellent French physicians, Dr. Boudens, informs us that during the Crimean war, the Russian prisoners, accustomed as they were to a very coarse brown bread, were not sufficiently nourished by the rations of bread which the French soldiers received, and that it was found necessary to increase their rations. It is a scientific fact, which

Magendie has proved by experiment that a dog dies if fed on white bread, while his health does not suffer at all if his food consists of brown bread (bread made of unbolted flour)."

The comparatively higher nutritive value of brown bread over white bread is hardly acknowledged in practice in any country. It ought to become an important duty of chemists and physiologists to watch the elimination of substances from articles of food in the process of cooking, &c., and to propose a proper mixture of different kinds of food to supply the deficiency of nutritive elements in each. Thus, the nutritive value of flour is considerably increased by the addition of fruit; so also potato soup is rendered more nutritive by the addition of peas. In our own country the mixture of rice with certain pulses serves the same purpose. This subject has been carefully cultivated in Europe as regards the food of cattle, but the question of the nourishment of man has never been properly attended to. Indeed the due importance of the subject is hardly acknowledged in practice. Here is a notable instance of greater value being set upon wealth than human life.

A very important question in relation to the articles of diet is about the comparative value of meat and vegetable food. In treating of this question, Baron Liebig first compares flour with meat, according to their component parts. Flour consists of albuminate, heating matter (starch), and nutritive salts; and meat has albuminate, heating matter (fat), nutritive salts and what are called extractive substances, the term being intended to denote that these can be extracted by means of water. In relation to these last, Baron Liebig states that—

"They are combustible and incombustible substances. The latter are phosphates, to be found also in tea and coffee. The greater mass of the combustible substances consists of very nitrogenic uncrystallisable substances, the nature of which has not yet been discovered; also of three crystallisable substances, creatine, creatinine and sarcine, of which the latter two belong to the same class of combinations as caffein. This is the remarkable class of the alkaloids which includes the most effective medicines, such as morphine and quinine; and the most fearful poisons, such as strychnine, coniin made from hemlock, nicotin and others. In its composition caffein is nearest related to the creatinine of meat-broth. None of the extractive substances of meat are to be found in vegetable food; they are the products of the animal body."

Meat food is more easily digestible, and is transmitted more quickly into the circulation of the blood. It has a tendency to make people bolder and more combative. According to Baron Liebig it has another quite peculiar effect on the nervous system, which is denoted by the words "tone" and "tension." This is supposed to be produced by the extractive substances only. In regard to this subject one opinion can be advanced without running any risk of being controverted, that the work supplied by vegetable food to the muscles "is capable of being given out continuously for a long period of time," while "flesh food stores up in the blood a reserve of force capable of being given out instantaneously in the form of exceedingly rapid muscular action."

Of the nutritive salts, one principal ingredient is phosphoric acid. It is "a component part of all the tissues, the blood and the juices of the brain, and the nerves, and is quite as important for their formation as their combustible elements." It abounds largely in fish; and hence it happens perhaps—partly at least—that we Bengalees with a comparatively weak physique, are capable of much more intellectual work than our more robust brethren of the North West. Of the nutritive salts, phosphoric acid, according to Dr. Parkes, is required by an adult of middle age from 32 to 79 grains daily, common salt from ¼ to ½ an ounce, sulphuric acid from 17 to 41 grains, potash from 27 to 107 grains, soda from 80 to 171 grains, lime from 2⅓ to 6⅓ grains, and magnesia from 2½ to 3 grains.

We now come to a close. We hope we have sufficiently demonstrated the importance of the subject under notice. In Europe there is now no difference of opinion amongst farmers and cattle breeders as to the nutritive value of food given to animals. We trust that the question of nourishment of man, will soon be reduced to some definite principles, and that the benefits of the discovery will be early reaped by the population of this country.

PRELIMINARY EDUCATION OF CANDIDATES FOR THE MEDICAL PROFESSION.

Of all the appliances that England has brought to bear upon India, for the purpose of raising the latter in the scale of nations, and restoring to her, if possible, her ancient glory, we believe none surpasses Medicine in respect of its adaptability for the end in view. Medicine and the Medical Profession have peculiar claims upon the British crown for being planted and indulgently cared for in this country. We all know what Great Britain owes to the profession. It was the skill of a patriotic physician which gained free admission for his country's merchandize into the dominions of the great Mogul. And we all know what and how the merchant's balance-rod has become converted into.

That rod is now the sceptre which is swaying those dominions and more,—swaying the whole of India from Ceylon to the Himalayas, and from the Bay of Bengal to the Indus. England has thus found herself with the awful responsibility not only of governing a vast continent with a population of one hundred and ninety millions of souls but of regenerating a large section of the human family which has lost its ancient renown and glory. To the honor of England we must with heart-felt gratitude acknowledge that she is vigorously at work to fulfil the ends of her sacred mission. The regeneration and the progressive enlightenment of our country are proceeding fast, aye with the rapidity of a truly tropical vegetation. And it does not require much penetration to see what share medical education has in helping the cause of our country forward.

Even at the risk of being charged with idolatry of the den we cannot help expressing our belief that medicine of all the sciences is the greatest civilizer of the human race. Prejudices and superstitions, the growth of ages, and the narrowness of intellect, at once the cause and the effect of these prejudices, though they have survived the bloodiest persecutions of the crescent and are firmly resisting the gentle, yet no less resolute, attacks of the cross, are dispersing before the march of European Medicine like mists before an advancing sun. Caste distinctions, those formidable barriers to all free exertion, are all but nominally observed in families where European treatment has made any progress, and such a good name this treatment has acquired among the native community in the remotest interior, that there is not only no fear of its being thwarted because of its heterodox tendency, but the only apprehension is how to maintain it in all its efficiency and purity so as to meet the wants of a daily increasing number of its *clientele*.

We confess such anxiety in handling the present subject. That European Medicine and its auxiliary sciences and their practical applications may be completely acclimatized, fostered and advanced by the united labors of all engaged in their cultivation in this land, is the object we have in view in devoting a few pages to the discussion before us. The first thing that would strike even a casual observer as requisite in a successful physician and surgeon is his power of observation and reflection. He should be able to observe accurately the surroundings of the case submitted to his examination, before he can venture to suggest any remedy. Now what tends to exercise this power of correct observation so much as an early devotion to Natural Philosophy, or, as we should like to call it, the knowledge of common things? If there is a difference between the observing powers of one man and another, it is indisputably owing to the one having diligently exercised

them from his youth, when all nature was new and attractive, while the other remained wrapped up in dreaming slothfulness. We thus plainly perceive that it is the intention of nature herself that the first years of man's life should be dedicated to an acquaintance with objects by which he is every where surrounded. This intention of nature, applicable to all human beings alike who desire to rise superior to the lower animals by the exercise of mental powers denied to the latter, comes with double force in the case of those who ostensibly set themselves apart for the study of nature as professors of medicine. Hence it is by no means making an exorbitant demand upon candidates for the profession to require them to have thoroughly strengthened their powers of observation by the education they have received before proceeding themselves to the sacred and onerous occupation of their lives. When they have actually done so what a vantage ground would they occupy for successfully prosecuting their future labors? Of what incalculable advantage, for example, does their knowledge of mechanics prove in enabling them to comprehend in their subsequent study of the anatomy of a limb the adaptation and combination of all the parts by which various motions are performed, and the share each individually has in bringing these about? What will enable them to understand the structure and the uses of the eye, if not some degree of familiarity with optical science? It is hardly necessary to multiply instances. We therefore content ourselves by remarking with Dr. Smith, who in the introductory address he delivered the other day at the opening of the 35th Session of the Calcutta Medical College so eloquently and earnestly advocated the cause of preliminary education in common things we are speaking of: —

"In the study of Physiology, that is, of the vital properties and living actions or functions of the body, the very foundation of the rational doctrine of Medicine of the present age, we must at every step refer to the laws of Hydrostatics and Hydraulics, or the principles which regulate the conditions and motions of fluids, and to Pneumatics, or the Physical as distinguished from the Chemical properties of gases, bearing ever in mind that in the study of Physiology these laws are all brought into relation with a vital principle by which their actions are modified and regulated. In the world of animal life we find that instead of the simple combinations of material substances obeying the known laws which govern inanimate matter, we have highly organised structures presenting the most complicated arrangement and exhibiting phenomena and movements peculiar to the living state, such as nervous irritation and muscular contraction, and which are referrible to powers appertaining only to such organised structures."

We are aware that the estimation in which we hold an acquaintance with common things and their unvarying relations may be considered an exaggerated one, or at least one out of all due proportion to its importance in medical education. To such as hold this view and as in their turn regard variety of knowledge

as necessarily tending to distract or confound the mind we cannot better reply than in the words of Dr. Arnott.

"Astronomy is only one of innumerable subjects, which, when imperfectly understood, appear obscure and difficult, but when more fully investigated, become remarkably simple. An example from the studies of medical men is furnished by the question of the movement of the blood in the veins, lately discussed in Medical Societies and Reviews with great earnestness. In this question, the appeal is necessarily made to the laws of Natural Philosophy, which regulate the phenomenon; but because the study of these laws had been little cultivated [1829] by the faculty, more time was expended in futile disputation and experiment upon this one subject, than would have sufficed for acquiring a competent knowledge of the whole body of Physics: now the understanding of the section of Physics, which bears on the point, would have caused all the difficulties at once to vanish. The circulation of the blood, again, is but one of numerous and scarcely less important subjects in the Medical Art, to which Natural Philosophy is the easy and only Key."

We have hitherto proceeded on the tacit supposition that the knowledge of common things though occasionally regarded as overvalued by some is not altogether neglected by students of medicine. It will be our painful duty now to examine what is the actual state of things in this respect in our own country.

But before we address ourselves to this part of our subject we deem it expedient to silence those who deprecate all knowledge if it is not strictly practical. Mr. Grove in an address recently delivered at St. Mary's Hospital remarks:—

"If there be one species of cant more detestable than another, it is that which eulogises what is called the practical man as contradistinguished from the scientific. If by practical man is meant one who, having a mind well stored with scientific and general information, has his knowledge chastened, and his theoretic temerity subdued, by varied experience, nothing can be better; but if, as is commonly meant by the phrase, a practical man mean one whose knowledge is only derived from habit or traditional system, such a man has no resource to meet unusual circumstances; such a man has no plasticity; he kills a man according to rule, and consoles himself, like Molière's doctor, by the reflection that a dead man is only a dead man, but a deviation from received practice is an injury to the whole profession."

Our contemporary of the *Indian Medical Gazette* in the June number has an excellent article on "Education in Natural and Physical Science." It is not necessary for us to reiterate or re-produce here what he has so emphatically pronounced on the neglect of natural science in the school curricula of this country. By large quotations from the published calendars of the Calcutta University he has clearly proved that as far as the majority of candidates for the medical profession in this city are concerned, they are quite innocent of all knowledge of common things so far as can be ascertained from the subjects of examination by undergoing which they have acquired the privilege of entering upon their professional education. The evil especially pointed out

in the *Gazette* is that should this state of things continue unaltered for any length of time, the university will find very few candidates for the higher examinations for honors in medicine. We must not omit to allude to the well-meaning suggestion made at the conclusion of the article as a temporary and partial remedy for overcoming the evil of combining primary or school, with secondary or college, courses of instruction in Natural Philosophy which students are compelled to make in order to rectify as best as they can the defects of their early training, for which by the way the *Gazette* does not at all hold them answerable, but very properly those who have the direction of their education. We must give our contemporary's suggestion in his own words :—

"In drawing this article to a close, we would venture to indicate the urgent necessity for appointing a teacher of Natural Science, in all the important schools and colleges. This will be expensive no doubt. But if the greatest efficiency be the greatest economy, the measure will eventually repay all expenditure laid out on it. Almost any reasonable amount of money spent in converting the *present book-worms* of the university into *practical men*, would be well expended. We would require the teacher of natural and physical science *to convey elementary and popular instruction*, by *teaching, lecturing, and, above all, by illustration and experiment*, Bontany, *Zoology*, Comparative Anatomy, Mechanics, Hydrostatics, Pneumatics, Acoustics, Optics and Chemistry. Once this great advance in primary education were made in India, all the university would have to do would be to demand, after the expiration of a reasonable period of time, a knowledge of these subjects at the entrance examination in arts ; so that when any of the passed candidates came to the medical college to study physiology, chemistry, comparative anatomy, human anatomy, surgery, &c., he would not begin, as if he were commencing upon the study of a new language, nor be placed in the awkward predicament of having to learn the alphabet and grammar, when he is expected to read and understand the most difficult and abstruse works of science and philosophy, and follow the professional dissertations delivered on the scientific subjects enumerated in the medical curriculum of the university."

Before we make any remarks on the above suggestion of the *Gazette*, we deem it right to draw attention to the following resolution of the University and leave our readers to determine how is it possible to convert *the present book-worms* of the university into *practical men* so long as the spirit which dictated such a resolution of the university is suffered to direct its counsels.

"On the suggestion of Dr. Duff, Resolved :—

"That it be an instruction to future Examiners, that, whenever particular books are prescribed, the questions should be taken strictly from those books, and be of such a nature as to be capable of being answered by any one, who had mastered such books."—*Minutes of the Syndicate for* 1858, *No.* 3.

With an instruction of the nature cited above, called perhaps into existence by the words "or other similar works" being generally added to the list of the text books on a particular subject which the framers of the university regulations thought it wise

to mention to make the student anxious to familiarize himself with the *subject* and not *master the book*, what examiner will dare put any questions save those that a *Book-worm* can easily answer and that it will be hard for any but a book-worm sometimes to understand? An examination conducted on such principles may certainly test the strength of verbal memory in the candidates, but to take it for anything higher would be a mockery and a delusion.

But to return to the suggestion of our contemporary. It indicates in the first place "the urgent necessity of appointing a teacher of natural science in all the important schools and colleges." A reference to the Volume of Minutes of the University of Calcutta for 1864-65 p. 6 will prove how far from realization is any such recommendation at the hands at least of the Metropolitan Institutions which certainly come under the category of "*important* schools and colleges," and the authorities of which are reported to hold "that the study of Natural and Physical Science was likely to be most beneficial to the natives of this country; that without experimental lectures, those branches could not be taught efficiently; that it was unreasonable to ask each of the Metropolitan affilited Institutions to provide separate lecturers of sufficient ability and costly apparatus, when the students of all the institutions might attend the lectures of a single well appointed chair."

Instead of proceeding any further to consider the suggestion of the *Gazette*, we deem it right to invite attention to the following citations from the records of the University, clearly establishing the fact that the provisional committee appointed for settling its regulations were not only fully aware of the importance of a knowledge of common things in this country, but gave a practical proof of their solicitude on this account by including, in the very first university examinations, subjects which exercise other powers of the pupil than mere memory of words—the powers of observation and reflection.

The university minutes of 1857, page 87, after enumerating all the subjects of examination in Languages, History and Geography, and Mathematics, quoted *in extenso* by the *Indian Medical Gazette*, include the following paragraphs, under the headings III and IV.

III—Natural Philosophy.

Mechanics (Only a popular knowledge!).

Composition and Resolution of Forces.

The simple Mechanical Powers, with the ratio of Power to weight in each.

Centre of gravity.

IV.—Natural History.

A general knowledge of the habits and characteristics of vertebrated animals, as described in Patterson's zoology or in any similar work. General economy of vegetation and simple or elementary organs of plants, as contained in the first 46 sections of "Vegetable Physiology" in Chamber's Course, or in any other similar work.

As if to more than verify the words of Bacon, "Ill, to man's nature, as it stands perverted, hath a natural motion, strongest in continuance: but good, as a forced motion, strongest at first," the university lost no long time to undo its own wise act.

We have been so particularly minute in our references to proceedings of the University for the purpose of pointing out to our contemporary how futile it will be to expect the progress of knowledge of things among the people of this country so long as those are the leaders of local education who in their youth were quite innocent of such pursuits, having been more than fully occupied with words and numbers. What then remains to be done for supplying this crying want? The proposition of the Asiatic Society of Bengal to Government to advance the knowledge of natural and physical science in the Schools and Colleges set apart for general education alluded to in the *Indian Medical Gazette* has not been, we are sorry to learn, favorably entertained,, the Asiatic Society were, we believe, the last to raise a voice in favor of such pursuits, but by no means their only advocates. So far back as the year 1824 our illustrious Ram Mohun Roy, in a letter to Lord Amherst, Governor General, wrote the following memorable words bearing upon the point before us.

"When this seminary of learning [a new sanskrit school in Calcutta] was proposed, we understood that the Government in England had ordered a considerable sum of money to be annually devoted to the instruction of its Indian subjects. We were filled with sanguine hopes that this sum would be laid out in employing European gentlemen of talents and education to instruct the natives of India in mathematics, natural philosophy, chemistry, anatomy, and other useful sciences, which the nations of Europe have carried to a degree of perfection that has raised them above the inhabitants of other parts of the world."

The Calcutta university too, despite its fatal mistake of a retrograde movement already pointed out, informs us in connection with the foundation of university professorships:—

"As a first step in the direction thus pointed out, the senate recommended the Government to found a chair of Natural and Experimental Philosophy on the general footing above indicated. This recommendation was forwarded for the consideration and orders of the Governor General in Council on the 25th of June, 1862; but no reply has been received up to the present time (April 1864)."—*Minutes for* 1864-65.

We have no means at our command for proving what has been the fate of the Senate's recommendation, whether it has been

formally rejected or shelved with records which must not be disturbed. One thing is clear that in the face of such strong reasons in favor of encouraging the cultivation of a knowledge of common things our Government with its wonted munificence in aid of every thing useful cannot long remain indifferent to popularizing this important branch of human knowledge, if only proper representations be made by persons fit by their situations to deserve its attention. Who can more authoritatively speak on this subject than professors of the Medical College who hourly feel the difficulty of converting book-worms into practical men? If only these gentlemen would desire the Director of Public Instruction to establish a class of the description proposed by the *Indian Medical Gazette*, and open to all who are willing to pay a reasonably moderate fee, and a bye-law of the College compel all future candidates for medical education to attend this class for six months from the end of the first week of December, when the Entrance Examination of the University is over, to the end of the first week of June before the opening of the new session of the Medical College, a portion of time usually wasted in idleness, so as to acquire some tolerable familiarity with natural objects and facts, and some facility in using their senses in practical manipulations, a most salutary change may be ushered into the educational system of this country, and bless it with medical men who would not consider their labor in pursuit of knowledge at an end the moment they are freed from college discipline. With such an early training in scientific subjects we may be spared the painful and melancholy spectacle of the threatened death by inanition of such a pre-eminently useful Society as the Bengal Branch of the British Medical Association.

CONTRIBUTIONS TO THE PATHOLOGY AND TREATMENT OF PUERPERAL FEVER.

By Baboo Bhoobun Mohun Chatterjee, L. M. S., Burdwan.

Puerperal fever has of late been very prevalent in the district of Burdwan. I have had no less than 33 cases of this dangerous disease under my treatment in the course of the last three years. Of these 9 were primipara and 24 multipara. From an analysis of these cases important conclusions may be drawn both as regards the pathology and treatment of puerperal fever. First, as to pathology. There can be little doubt that vitiation of the blood is the principal or rather the sole cause of puerperal fever, and that this vitiation depends upon causes either external or internal. Eminent physicians, among whom are Drs. Copland, Barnes, Kaufmann, Semmelweis, Cauzeux and Uvedale, have given it as their opinion that "it is in the blood that we must seek the *point départe* of puerperal fever." Dr. Ferguson declares that "the phenomena of puerperal fever originate in a vitiation of the fluids. Second, the causes which are capable of vitiating the fluids are particularly rife after child birth. Third, the various forms of puerperal fever depend on this one cause and may readily be deduced from it." My own limited experience tends to confirm the opinion of these great observers as regards the blood origin of puerperal fever. Here is a case in point.

On the 22nd November 1868, I was called to see the daughter of a Baboo in the Maha Rajah of Burdwan's service, who was suffering from child-bed fever, the lady aged 22 was plump and relaxed woman. Her labor was quick and easy. On the third day after delivery she had a strong shivering fit, followed by high fever, headache, thirst and restlessness. When I saw her she was sitting up in bed and talking with her friends. She was then perspiring copiously, pulse 120, weak, lochia scanty and offensive, muscles of the abdomen relaxed. Uterine tumour could be felt and it was somewhat larger than what it ought to be on the fourth day after delivery, no pain over the uterus, except on very hard pressure, tongue dryish, covered with a brownish fur, bowels costive. I gave her a dose of Gregory's powder. When I visited her again in the evening, I found her lying on her back with legs drawn up, the abdomen was tender and tympanitic, pulse very rapid and weak, skin hot, lochia suppressed, breathing shallow and thoracic. Countenance indicative

of great suffering, bowels moved once only. As the patient had a second rigor the next morning, her father and husband thought it proper to place her under a quack's treatment, and my services were dispensed with. She got worse and I was called again the evening following. I now explained to her father as well as her husband the dangerous state of her health and wished for consultation. Dr. Cayley was called in and we did our best together, but the patient showed no signs of improvement. Her abdomen became distended with gas, pulse exceedingly feeble and intermitting, breathing oppressed, mind confused, and she breathed her last in the night.

I think it useless to trouble the reader with all the cases which would, I think, greatly lengthen this paper without any adequate advantage; suffice it to say that the febrile symptoms had preceded the local inflammations in 23 cases, in 10 other cases which were under my treatment, I could not exactly make out whether the rigor and febrile symptoms had preceded or come on simultaneously with the local inflammation, as I had not the opportunity of observing the symptoms of accession.

The accession, course, and symptoms of puerperal fever are exactly like those of pyœmia. It is very probable that the disease is caused by the entrance of some morbid matter into the system which circulating with the blood induces some chemical changes in it rendering it highly irritant. The irritating blood as it passes through the capillaries induces congestions and inflammations in the various parts of the body. The structures which are commonly affected are the serous membranes, particularly the peritoneum and sometimes the pleura. Here is a case showing the primary local lesion in the pleura and secondarily in the peritonium.

On the 28th November 1866, I was sent for from Hijulna (6 miles from the town) to see the wife of a gentleman who was suffering from fever and a pain in the right infra-mammary region, on the sixth day after delivery. She had all the symptoms of pleurisy, viz., cough, hurried abdominal breathing, a sharp stitch in the right infra-mammary region, a distinct friction sound was heard on auscultation and fever. I first thought that the patient had only an idiopathic pleuritis. The next day however all the symptoms of puerperal fever and peritonitis appeared.

Next to the serous membranes the cellular tissues in the pelvis and the proper tissues of the uterus are liable to be affected. Here is a case in point:

A lady aged 22, the wife of a friend of mine, gave birth to a baby on the 30th November 1866. In the evening she complained of rigor and headache. I was called in the next morning, I found her greatly agitated in spirits, she had a rigor in my presence which lasted about five minutes, the rigor was soon followed by heat of skin, thirst and headache; on examination the uterus and the left iliac fossa were found to be hard and tender. I ordered a dose of Gregory's powder and four leeches over the painful parts.

1st Decr. 1866. Complains of an agonizing paroxysmal pain in the lower part of the abdomen; upper part of abdomen soft and without any tenderness; fever high, pulse 140, tongue dryish and furred, thirst, restlessness, lochia suppressed; she complains of great pains during micturition, frequent calls to pass water; urine scanty and high colored; bowels moved twice; ordered effervescing draughts composed of ammon. carb. and citric acid every two hours—Pil opii gr. 1 every 3 or 4 hours, turpentine stupe over the uterus and left iliac fossa. Diet milk and sago.

2nd.—Complains of pain all over the abdomen, uterus particularly tender, nausea, fever high, pulse 140, thirst inordinate, paroxysmal pains continue, great prostration of strength. The left iliac fossa is found to be swelled, hard and very tender, and restlessness. Ordered,

℞	Quinæ sulph	gr. iii.
	Acid nitric dil.	♏ x.
	Tinct. Cinchonæ	ʒ ii.
	Decoct. Cinchonæ	℥ ii.

Ft. Haust. every 4 hours.

The effervescing draughts and opium pills are continued.

℞	Tinct opii	♏ x.
	Tepid Arrowroot	℥ viii. ft. injection.

Fomentation, and bran poultice on the abdomen.

Brandy diluted with broth every 2 hours, milk and sago.

Vespere—Two copious stools, dark colored and offensive, paroxysmal pains less, abdomen is distended and tympanitic. Cont. all. To have another injection.

3rd—No paroxysmal pain, tenderness over abdomen less, fever less, pulse 130, tenderness over uterus and left iliac fossa just the same, dysuria still distressing. Cont. all. To have eggs beaten up in addition to her other food.

4th—Eight stools thin, offensive and bloody, no paroxysmal pains, fever less, dysuria less, tenderness over abdomen much the same,

uterus and left iliac fossa are still very painful. Omit above

℞ Chlorodyne 3i.
Mist. Cretæ ℥vi.

Ft. Mist. one ounce every 3 hours, milk and sago, brandy and broth as diet.

5th.—No stool since last report, feels better, fever rather high, pulse 140, feeble, no tenderness over abdomen, no dysuria, tenderness over the uterus and left iliac fossa continues, thirst great.

Omit chlorodyne and chalk mixture. Resume Quinine mist, effervescing draughts, opium and food.

6th.—Convulsions, fever less, pulse 160, hands and fingers quite stiff, Omit opium and brandy; cont. mist. quinine with chloric ether half dr. added to each dose.

℞ Ol. Terebinth ℥ s.
Mucilage ℥ss.
Tepid arrowroot ℥viii.

Ft. injection; stat.

7th.—A couple of large ascarislumbricoides, each measuring upwards hand and a half, of two feet in length were expelled, and convulsions ceased soon afterwards, fever rather high, pulse 140, tenderness over uterus and left iliac fossa less. Cont. mist. quinine opium and food; omit injection.

8th.—No fever, pulse 120, pain over uterus and left iliac fossa continues, swelling of left iliac fossa more marked; cont. all.

Emplast lyttæ over the uterus and left iliac fossa.

9th.—Very much better, cont. all, simple dressing to the blistered surface.

10th.—Improving steadily, swelling of the left iliac fossa disappeared, cont. all.

11th.—No tenderness over the uterus or on the left iliac fossa, omit above.

℞ Quinæ sulph gr i.
Vinum Rubrum ℥iv.
Decoct Cinchona ℥ii.

Ft. Haust. Three times a day. Rice and milk as diet.

12th.—Nothing to complain, no med.

The cerebro-spinal system and the venous plexuses are also commonly affected. But I have never seen a case where the mucous membranes alone are affected. I had under my care two cases of puerperal fever involving the cerebro-spinal system, of which the following is the most interesting.

On the evening of the 20th October 1867, I was called to see D. aged 35, who was suffering from childbed fever and convulsions.

Previous history. One of the friends of the patient states that she never had regular courses, she had been pregnant many times but had given birth to one living child only, every other time she had miscarried during the early months. As her last pregnancy was unholy, her spirits were depressed, she had made several unsuccessful attempts to bring on abortion. In a fit of despondency she absconded from home and went up to the N. W. Provinces, with intention of being confined in an unknown place, unseen and unregretted by friends and relations and thus to avoid the shame of a dishonorable delivery. On the morning of 10th October, she gave birth to a boy. On the 5th day after delivery she had a severe rigor followed by high fever and pain in head. The next morning she became furiously delirious, a medical man was called in who had dosed her with calomel and had applied a large blister to the nape of the neck. The next day the patient became quite insensible with occasional convulsions of the whole body. Alarmed at the sight, the servants thought it best to take her down to her own house.

Present symptoms. The general aspect of the patient is well proportioned, healthy and robust. Eyes wildly staring and red, pupils contracted and insensible to light, veins of the scalp and temples full and prominent, head very hot, tongue dry and furred, bowels very costive, skin hot and dry, pulse 160, hard and full, breast tense hard and full of milk. Lochia suppressed, bladder full and constant dribbling of urine from overflow, uterine tumour hard and enlarged reaching as high as the umbilicus; patient is quite insensible, breathing stertorous, convulsions very frequent, coming on every ten minutes, and lasting for five or six minutes at a time, during the fit the eyeballs are turned upwards, the muscles of the face are irregularly twitched and contorted, the jaws are opened and closed in frequent succession, alæ of the nose widely expanded, froth at the mouth. These all combined giving the face a frightful expression.

These are soon followed by jerking of the neck. The muscles of the back are rigid, arms and legs are moved with sudden and irregular jerks. These convulsions are more marked on the left side, ordered 2 dozens of leeches to the forehead and temples. Castor oil and turpentine injection. Head shaved and ice applied on the shaven scalp, about 2 quarts of ammoniacal urine drawn off by catheterism.

21st.—Bowels moved twice, motions dark, tarry and very offensive, skin very hot, pulse too thready, convulsions more frequent and duration long, coma more profound, breathing stertorous and oppressed, urine retained. Ordered, sinapism to the chest and calves of the legs and ice to the head continued, urine drawn off by catheterism chloric ether ʒi., Tinct. Asafœtida ʒii., Milk ʒviii., Ft. injection every 3 hours. Vespere, 3 injections retained; cont.

22nd.—Convulsions very frequent, breathing much oppressed and stertorous, skin cold and clammy, pulse very very feeble, urine retained—cont. all.

Vespere, No pulse at the wrist, convulsions very frequent, she expired in the night.

Although the local lesions are very marked in puerperal fever, they cannot be said to constitute the primary and serious effects of the disease, they are merely the secondary effects of the disease, the fatality of which is in proportion to the contamination and corruption of the blood.

As to the nature of the poison which thus contaminates the blood, we must admit that our ideas are unsteady and obscure. I am prepared to believe that it is an animal poison which either originates *de novo* in the system (I have reason to believe that a certain number of cases are due entirely to causes existing in the patients themselves, having nothing to do with external poisons) or is introduced from without. Medical men in general believe that puerperal fever is very contagious, and that the poison is capable of transference by a third party. But my own experience, limited as it is, leads me to a different conclusion. From an analysis of the 33 cases with which I had to deal, it has appeared to me that puerperal fever is simply an epidemic disease, or if it be contagious at all, it is in a degree very inferior to other contagious diseases; such as small-pox, measles, &c. a strong predisposition is I believe necessary to the operation of the materies morbi.

The native Dhaee, who nursed my first case, attended the easy and normal delivery of seven women in the course of one week, of these seven newly delivered women two only had puerperal fever, the other five remained unaffected. How can this difference be explained. If the disease were contagious how did the latter escape altogether? My own conviction is, that the two women who had the disease were either very much predisposed to the action of the infection and the other five were not susceptible of it; or

that the former caught the disease from a vitiation of the constituent elements of the atmosphere to which they were exposed and the latter were not so exposed. Again, I myself entered without changing any clothes several lying-in rooms after attending my puerperal patients, but in no case do I remember having imparted the disease to any one. There can be no doubt that there are circumstances such as the degraded condition of the blood during pregnancy, the shock and extensive local injuries dependent on labor and the bad sanitary condition of a native *Antur* (lying-in room) ;* all these combined have a strong tendency to render the health of native mothers susceptible to the action of poisons.

*What sort of a thing is a native *Antur*, it may be asked by English readers and others who have no knowledge of it. To have some idea of the *Antur* they must suppose a small wretched solitary thatch with a meagre fencing of palm leaves or some other thing like that, to be situated in an isolated quarter of the house.

The floor is the ground with perhaps a slight mud-work over it. There is a single doorway and no passage for the air to come into the room except the little chinks of the fencing. Outside the room there is the skull of a cow with a quantity of cowdung and some shells attached to it and some human hairs wound round the horns: within the room in one corner are the placenta, rags covered with blood, rags also saturated with liquor amnii and lochial discharges deposited together. These decompose and emit a most nauseating and offensive stench; but Hindu superstition forbids their removal. In another part of the room is a lamp lighted for the purpose of preventing darkness even during the day, so curiously constructed is the room. Elsewhere you will observe pieces of firewood kept burning all day and night for the purpose of keeping the room warm and of fomenting (or rather baking—Ed.) the body of the mother and that of her newborn baby. The smoke and heat arising from these are sometimes sickening and suffocating. In the midst of these lie the mother and the newborn child. Their bed is a torn useless mat or an equally wretched country cumlee (blanket.) A *peeri* or flat wooden seat serves the purpose of a pillow, the mother is clad in the veriest rags, of the dirtiest description possible; these are very often the refuse of the family clothing article laid by with care against an approaching delivery. She (the mother) is not allowed to go out and has to perform the calls of nature for the first five days in the room. The soil is removed by the Dhaee, but the urine and its offensive smell remain. All these are the result of a strangely disgusting and dangerous superstition connected with the Hindu-*Antur*. The *Antur* is an impure and unholy thing and so also are the mother and her child. Their touch is of course defilement, even setting your feet on the floor of the *Antur* is held impure. Hence as long as the mother and child are to remain in the *Antur* they remain in that shamefully shabby and filthy condition, apart from the rest of the family with only a female attendant who acts as Dhaee. The mother during her confinement has to take a composition of geela, black and long pepper, dry ginger and zeera which is commonly called the *Jhal*. This is administered with

But as these causes were common to all the seven cases of delivery and attended as they were by the same Dhaee, I could not at first account for the difference; subsequently on a careful investigation it struck me to find that most of my town patients resided on the rivulet Banka which may be fitly called the privy of Burdwan. The Banka is beyond all comparison the filthiest and most deplorably wretched stream in the town. The state of its banks is a standing disgrace to the municipality of Burdwan. On the banks vegetable, animal and fœcal matters are always in different states of decomposition, emanating the foulest effluvia which may give rise to any pestilential disease known. People residing on the banks seem to await and invite the advent of an epidemic disease. During cholera epidemics these persons suffer the most. What wonder then that newly delivered women, liable as their constitution is to the influence of exciting causes, should get the disease from this source alone.

Some of the cases again occurred when an epidemic of small pox was ravaging Kanchunnagore and Lacoredi. Two of my village patients were found to reside on grave yards, the surface and subsoil of which might have been saturated with organic matters in a state of decomposition, the emanations of which might have caused the disease; two of my town patients resided in places which first appeared to me apparently healthy. But as I had

the view of drying up the system. What with this, the dry fomentation, the heat of the fire in the room, the heat of the sun out of it, the want of ventilation and the stench of various decomposed articles, both mother and child have precious trying time of it, and the wonder is how they stand them. If the weather is hot their condition becomes more distressing; if during rains there are other circumstances equally mischievous to be apprehended. The floor gets damp, the fire does not burn well, there is a want of warm clothing and the bed is a single torn mat. In this state have Hindu mothers to spend five days. Five mortal days they appear to her. On the 5th day the room undergoes a cleansing operation, but continues to be her home for four days more. On the 9th day she is allowed to come out to breathe pure air, but still she is not allowed to come in contact with the other inmates of the house. Is there any doubt that those days of privation and suffering do most seriously tell on the delicate health of both mother and child? why wonder then if Hindu children are so weak and sickly? The child comes forth into the world with the seeds of a vast variety of distempers engendered into the system from the *Antur*. This is the picture of a state of things which has not disappeared, but is still found in by far the bulk of native families in this country, though some improvement has of late taken place in the *Antur* arrangements among families of educated men near the Presidency.

to live in one of the houses which had been formerly occupied by one of these two patients, I felt convinced that that house too, standing as it does on a grave-yard, is unhealthy. It happened again that at Dhamra two females were delivered on the same day and in the same house, and there was communication between the two *Antura*, one of them had puerperal fever but the other altogether escaped it. At Mohata two females were delivered on the same day and in the same house and both were attended by the same Dhaee, one of them had puerperal fever on the third day after delivery, but the other had only remittent fever on the fourth day after delivery. The practical conclusion from these facts appears to be that the contagion does not under all conditions but under certain predisposing ones only, cause puerperal fever; and that the real danger of carrying morbid poisons from patients to patients by medical attendants and nurses, notwithstanding careful washings, is I believe overrated.

In the summary of the 33 cases given above, it will be seen that multipara are much more liable to puerperal fever than primipara. There are reasons to believe that the greater liability of the multipara is attributed to the most depressing influence which previous pregnancies and deliveries and above all prolonged lactation exert upon their health. The laxity of tissues and debility of the generative organs, the cares and anxieties for children and the several emotions of a mother are regarded as other disturbing influences. These all combined render the health of multipara more liable to the influence of the exciting causes of puerperal fever than the health of primipara.

Secondly, as to the treatment of puerperal fever. The treatment of puerperal fever will necessarily prove futile if it be conducted on the local inflammatory theory, and so long as the presence of an essential disease of blood vitiation is disregarded. Puerperal females become very weak from the very commencement of the fever; the early prostration is the consequence and indication of blood vitiation. Discarding then the antiphlogistics such as bleeding, leeching, purgatives, mercury and antimony, which are so glaringly inappropriate, we are to adopt a mode of treatment that would on the contrary revive the enfeebled system. The most important part of the treatment consists in the judicious administration of light and nourishing food, such as broths, milk, sago, arrowroot, eggs beaten up, and the like, given in small quantities

but in repeated doses. Observance of cleanliness, ventilation, general quietude both of mind and body, and as much as possible rest in bed, is to be insisted on. All evacuations and discharges are to be instantly removed. If the bowels are costive I generally begin by giving a mild aperient such as Gregory's powder or castor oil; when the bowels are moved, I order,

℞ Quinine grs. iii.
Acid. nitric dil. ♏x.
Tinct. Cinchonæ co. ʒii.
Decoct. Cinchonæ ℥ii.

Ft. Haust. Every four hours. To remove pain and spasms opium every three or four hours is very useful; when the bowel-symptoms become distressing I generally resort to opium & starch enemata. It first relieves the bowels and afterwards soothes them. To quench the excessive thirst effervescing draughts composed of carbonate of ammonia and citric acid are very grateful. To combat general weakness, brandy diluted with milk or broth, according to the patient's taste, is allowed from the very commencement of the illness. Fomentations, poultices, turpentiné stupe and blisters are powerful adjuvants and I generally resort to their use when the local pains require them. During convalescence tonics and good food form important aids to the speedy restoration to health and strength.

Professor Poli of Milan speaks very highly of the usefulness of sulphites in septicœmia. I had tried sulphites of potash and soda in two cases, but finding their uselessness in puerperal fevers I had to give them up and to have recourse to the plan of treatment stated above.

Having heard so much in praise of aconite, I tried the tincture in ½ drop doses every 4 hours in one case only, and I have reason to believe that it is a very valuable medicine. But as my patient had a few doses of opium before the aconite was given her, a further trial is necessary before I can say with any certainty as regards its therapeutical value in puerperal fever. I may here remark that of 33 cases treated according to the plan of treatment mentioned above, two only died. The first of these two cases was the one who was snatched from my hands and placed under a quack's treatment; and the last was the case of the female who had puerperal fever involving the cerebro-spinal system. She came under my care too late when her case was quite hopeless.

CLINICAL RECORD.

Cases Under Dr Leopold Salzer.

1.— *Dread of Cholera and Cholera cured by* Arsenic.

M G Engineer, aged 35, a strong and robust man, has had two years ago, during his stay in Egypt, an attack of cholera. Since then, although physically recovered, he suffers from "dread of cholera." He describes his disease nearly as follow · When lying down, especially at night, I sometimes, before falling asleep, feel overcome by a shower which goes right through me, from head to feet, at such a moment, I am tortured by the idea that cholera, such as that I experienced in Egypt might come or is coming over me, and prepare myself to endure all the agonies which unavoidably await me after this dreadful, precursory shower. It is useless to gather the whole amount of my moral courage, or to try to get rid of it by leaving the bed and moving about—I feel like paralyzed; it is to me, as if I dared not move, and as if I therefore could not do so. In the mean time I suffer nearly the same what I suffered, when I was in the advanced stage of cholera: my body feels benumbed, my senses become muddled, the breath gets laborious, cold sweats come out which seem to freeze me through and through. The attack seldom lasts more than 10—15 minutes and leaves me in a state of exhaustion, which I however completely recover next morning. The attacks come on irregularly, on an average of every 10 to 14 days, they are sometimes preceded by some transitory "dread showers" during the day.

The patient, perhaps more appropriately to be called the imaginary sufferer, arrived in India last year and went to Bazoul (a G. I. P. Railway station) but had after a stay of two to three months to leave this place, on account of violent borborigmi after every meal, and leaving him afterwards so weak, that he was hardly able to attend to his duties. Patient described his state after meals, just as if a boiler had been working within his bowels. He had however no sooner arrived at Calcutta, when that complaint entirely and spontaneously left him. The "dread of cholera" however continued, and it was about this that, he consulted me last January.

He took veratrum 30 then 18 for a month, without any benefit. Laches. 30 seemed to have some good effects, but were however of so trifling a nature, that a further course alone had properly to decide about its value or otherwise.

In the first half of April I was summoned to the patient's house at 7 p. m., and found him in a state, usually designated as the second stage of cholera. He had in the afternoon been overheated and taken a glass of iced beer. Immediately those burborigmi, so well known to him reappeared; evacuations followed, first of a diarrhœaic character; then succeded watery stools, burning at the stomach, throwing-up of the water to quench his burning thirst, icy coldness of the limbs, choleraic face, laborious breathing, etc. I left Ars. 3., six glob. in half a tumblerful of water, with the instruction to take every ten to fifteen minutes. At 10 o'Clock p. m., a tea-spoonful. When I saw him again, I found him in a wholesome perspiration; the thirst had considerably abated, and what still remained of it, could easily and without any vomiting be quenched by small quantities of ice water. He had no motion since more than an hour, and felt on the whole much better. His recovery was a rapid one; a remaining diarrhœa with preceding burborigmi, similar to those he experienced formerly, has been, in the course of two days, subdued under the use of Nitr. Ac. 6.

Since then that dreadful "dread of cholera" has no more reappeared.—Was it the real occurrence of cholera which extinguished all further vain dread or was it Ars. which cured the one as well as the other?

2.—*A case of inveterate intermittent fever cured by* Quinine 200.

Mrs. B...n, aged nearly 40, of a lymphatic constitution, had, two years before I saw her first, suffered of intermittent fever for more than six months. She had taken Quinine unto deafness, but could not get rid of her tertian ailment. At last she gave up doctoring and found, not to her little astonishment, that the fever began to abate in violence in the measure as she did less to oppose its course. Within six weeks she was gradually free from all traces of periodic fever attacks; although, to judge from the further particulars of her recital, she suffered a long time afterwards from the quinine-cachexia. Last October she was again attacked with intermittent fever, this time quotidian. She made up her mind from the very beginning not to use any thing against it, but to pursue her old policy of "masterly inactivity." Unfortunately she

found herself disappointed this time and the cold guest would not discontinue his regular visits, she then resolved to betake herself to Homœopathy. When I was consulted, I was informed on questioning her, that the different stages of the fever were pretty well marked; that the thirst begins at the end of the hot stage. There having been no extraordinary indications, I decided upon *China*; bearing in mind however, her former history and having been informed that she has been, within the last year liable to facial neuralgia, (a circumstance I ascribed to her former misuse of quinine) I was going to prescribe the 200th dilution; when the thought struck me, that it would be unwise on my part, to let the patient know, that she is again going to take a medicinal substance which she has accustomed herself to keep in horror since two years. I told her then, I shall send her a medicine of my own preparation, and did so. When I next saw her, I was told, she feels most unfortunate with her fever and ague, and she sees well, that no kind of medication will suit her, since she felt so much worse from the last medicine, I ordered to discontinue it and prescribed six powders of *Sacch Lact.* for the three following days. In order not to be induced to interfere in any way within the following three days, I purposely stood away for this time. At my next visit, I was surprised to hear that the abovementioned aggravated attack was once for all the last one!

3.—*A case of Dyspepsia from spices cured by* Nutmeg.

A gentleman lately consulted me about his dyspeptic state of which he suffered nearly as long as he resided in India viz. two years. His principal complaints were: want of appetite; distension of the abdomen after small quantities of food, accompanied by asthmatic breathing; a heavy sensation in the region of the liver; stools sometimes hard, sometimes diarrhœaic, generally occurring immediately after a meal. His tongue was pretty clean, and there was no altered taste. He had always enjoyed good health, did never allow himself excesses of any kind, and takes as much daily exercise as compatible with the climate of this country. Tonics, bitters, pepsin have occasionally raised his digestive powers, but never to a healthy standard, and then he ultimately always became reduced again to his previous dyspeptic state.

I attributed his ailments to excess of spiced food (so common amongst Englishmen generally and in this country especially) and was told, on further enquiry, that he certainly would never have taken curries to such an extent in England; but since he came out

to India, he felt his usual appetite wanting and was induced to this kind of dishes, which however he could not think for a moment, at present, to resign, since it would be impossible for him to take even the little nourishment he presently enjoys.—I prescribed *Caps.* 30 to be taken for three days, an hour before every meal, without changing in any way his usual diet; and ordered him to try gradually to diminish the strength of his curries after the said three days, continuing all the while the medicine as directed above, for the following eight days. When he saw me next, he stated not to have felt any of those disagreeable symptoms occurring after meals; his appetite however was in the same state as before, and so the sensation in the region of the liver too.—*Nux moschata* 2. three doses daily, restored the patient within a fortnight to his full vigor of digestion. I found the last-mentioned remedy often indispensable in cases of dyspepsia of the above-mentioned kind, where the patient has for a long time stimulated his appetite by spices, in which case it would be unwise on the part of the physician to order his patient to give up his habits, and where on the other hand the ordinary prescribed medicines as Calc. Carb., N. Vom., China, etc., will most likely fail to accomplish a cure.—In a curry-country like India, I would especially draw the attention of the practitioner to the above-mentioned remedy.

Chronic Traumatic Inflammation of the left elbow-joint cured by Rhus Tox.

UNDER CARE OF M. L. SIRCAR.

A boy named Preo Nath Mukerjea aged 15, was brought to me from Ooterparah on the 28th Februry last for pain and swelling of the left elbow-joint resulting from a violent sprain upwards of two months ago. The joint had remained in a semi-flexed condition, since the accident, incapable of both extension and flexion. Blisters, liniments, fomentations had been applied, but in vain. I ordered *Rhus tox.* 6, globules; in the course of a week the swelling had so far diminished as to allow the joint of full extension and flexion. The slight pain that remained vanished in a week more. This is only one of many instances in which I have tested the efficacy of *Rhus tox.* in chronic inflammation of the articular structures, especially when resulting from blows, strains, &c.

Sloughing of the Spleen.

By Bhoobun Mohun Sircar, L. M. S

On the 18th December 1864 I was requested to see a girl aged 11 years, suffering from chronic malarious fever and enlargement of the spleen for nearly two years, she was very weak and emaciated and found lying on her back with a poor dejected countenance. On removing the cover from her body, a large sloughing ulcer was exposed, situated on the left hypochondrium, circular in size and as large as the palm of my hand, giving out a putrid offensive smell. The skin and the abdominal muscles at the region of the spleen were destroyed and a deep ulcer left, with rounded, defined and angry-looking edges. The sloughing extended into the parenchyma of the spleen, the anterior portion of the capsule destroyed and the spleen found at the bottom of the ulcer, as a soft pultaceous mass, kept *in situ* by the remaining portions of the capsule and its attachments. About 8 months ago, actual cautery was applied on the surface of the splenic region by a native quack; a large ulcer formed, which began to slough, and destroying the abdominal wall, the sloughing gradually extended to the substance of the spleen. The spleen continued in this sloughing state for more than two months but at last the poor girl died a few days after my visit.

The above is a very interesting case, offering a striking illustration of sloughing of the spleen, which is a rare morbid phenomenon. It presented a singular opportunity of viewing the spleen *in situ* in the living organism. One thing very curious about the case, was the fact of the sustenance of life for more than two months, since the commencement of sloughing and actual death of such an important organ as the spleen. She was taking rice, soup, milk and bread, &c., and getting normal stools every day when I saw her; in fact, the digestion was pretty normal. I have never seen nor heard nor found on record any other case of sloughing of the spleen.

It may not be out of place, if I were to mention another case of sloughing spleen, found in the body of a patient, who died of phthisis in the Medical College Hospital, under the care of Dr. Goodeve. The man was treated for consumption, and there were no palpable diagnostic symptoms, to account for any morbid action going on in the spleen. On opening the chest and abdomen after death, cavities were found in both the lungs, the liver and the coats of the intestines were studded with tubercular deposits. The spleen was found very much reduced in size, black, soft and yielding like jelly. We could

not detect such an important disorganisation during the life of the patient, in fact, no palpable symptom was present to account for it.

A case of Scarletina.

By an *L. M. S.*

Dr. Waring in his new Pharmacopœia of India remarks under article Belladonna that "*its alleged powers as a prophylactic against scarlet fever must be regarded as still sub judice.*" Whether Belladonna has any prophylactic virtues against scarlet fever or not, I am not in a position to assert, but that its exhibition has been attended with marked success in a case of scarlet fever I can testify to and in support of my assertion I have been induced to bring forward the following case. It was a mild one indeed but still it requires notice as the occurrence of scarlet fever in this country is very rare.

A child aged 10 months in the Burdwan district was observed ill with symptoms of catarrh on the 17th Sept. 1868; on the 19th instant this was followed by fever and on the following day rose-colored eruptions began to appear first on the face and neck in patches and the skin around was hard to the touch.

Aconite and Pulsatilla were tried but the eruptions spread all over the body and the fever remained unabated. On the 21st inst. 200th part of a drop of Belladonna was given to the child at about 2 P. M. which was repeated 3 hours after. During the course of the night the eruptions disappeared altogether and the fever became much less. No medicine was given on the 22d but as there remained slight feverishness, a similar dose of the medicine was repeated on the next day; this made the child all right. Since then the child has been all right and there happened no unpleasant symptom as it generally happens in the sequel of scarlet fever.

Electricity Homœopathic to Intermittent Fever.

By GEORGE N. TIBBLES, M. D., Hudson City, N. J.

INTERMITTENT fever is said, by most authors, to have its cause wholly in a miasmatic poison. I think this a partial misnomer and will endeavor to give satisfactory reasons for this opinion.

The mysterious emanation arising from low marshy grounds, and infecting the air, soil, and water—a pestilential something usually spoken of as malaria has for many years been sought for; but as yet no chemist has separated this germ of evil from the marshes in which it is thought to be engendered. Continual trials have failed to render it tangible; and as yet there has been no analysis of it.

Its sway is dreaded alike in the lowest valleys, and on the highest hills.

I have reached the conclusion that, described as malarial, the exciting causes of diseases are not *bad air*, but that they are the result of disturbed electricity; and that the marsh miasm gas, or effluvia of vegetables and decomposing animal matters are not, as commonly supposed, the specific causes of agues, or similar affections.

But, I consider that electric changes cause febrile diseases; and the noxious emanations are disturbed electro-galvanic currents, sometimes positive and sometimes negative, causing a want of equilibrium in human bodies; and these agencies are excited or set free from soils of marshes, by the effect of evaporation, and chemical action, by deposits of putrid waters among minerals, ores, and metals, in wet lands during rainy seasons after long continual absorption of solar heat by the earth.

In as many ways as those by which galvanism is produced in the earth, or air, the cause of this disease has the power to influence and disturb the natural electricity of human bodies, particularly when in contact with the ground.

This oft-repeated disturbance alters the condition and function of human organs, and is capable of exciting or depressing the vital functions of the body by acting chemically on the circulating fluids.

While the relations of electrical influence to the laws of life are universally admitted, the very existence of marsh miasms may be denied; their nature not being known, neither is their physical nor chemical properties; and even their presence is only known through their effects on the human constitution.

No other test of their existence has as yet been discovered.

Were miasms of ponds and swamps the exciting cause of ague, this pestilence wafted on the winds, would be just as variable in its effects as the wind itself.

We should then have every possible shade of suffering; but no parallel epidemics or endemics.

Every variety of inhaled poisoning would prevail at the same time and place.

But on the contrary intermittents and all other diseases induced by similar causes, are similar in character, and no two of them prevail in the same place at the same time.

Definite causes produce definite effects.

By no hypothesis deduced from the theory of miasm, can the known fact be accounted for, that places and localities can be pointed out, where malarious influence is insulated and limited to one range of a street or even to one habitation.

Malaria tossed about in the air will not account for one portion of a valley being affected, and not the other, nor will it explain why some dry and beautiful hills are unhealthy, while the marshes below are not.

It is well known that numerous small spots of land, circumscribed by a distinct boundary, have been noxious for ages.

It is also known that in various situations physicians cannot readily cure or relieve certain nervous or rheumatic complaints, owing to causes which are undoubtedly electrical.

This renders absolutely necessary the removal from such localities of sensitive patients, to whom a change of air is simply a change of habitual electricity.

While the nature, and even the very existence of marsh miasm is without a reasonable demonstration or explanation, the connections of electricity with all the agencies of nature are unbounded and undenied.

In its various forms of currents it contorts the muscles of lifeless animals; and it flies in its condensed form instantaneously through the circuit of many persons, producing a manifest shock in them all.

We observe that the amount of electricity required to charge different persons varies much in quantity; their capacity for electricity and their conducting power vary considerably: therefore, it is not strange that endless diversity prevails in the ailments and sensations of persons who are sensibly affected by what they call the state of the weather, the change of the winds, &c., &c.

These enemies are supposed to be the actual perpetrators of all their injuries, which of themselves they have not the power to inflict.

They are only vehicles of the disturber and conduct it.

They convey the disturbing agent galvanism, which speedily probes the bones, muscles, joints, and inmost organs of invalids, deranging the nervous function and effecting the animal spirits.

Electricity can produce thousands of distinct effects.

It is light, heat, galvanism, magnetism and chemical action, or it is convertible into them.

It encircles all particles of matter, and preserves it by its power of attraction and repulsion.

A definite proportion of electricity belongs to every thing; and, as a natural quantity is essential to health, so any excess, deficiency, or derangement, will cause derangement in living beings: therefore, the natural equilibrium cannot be broken or disturbed without equal disturbance in all the functions influenced by definite electrical agencies.

Observation gives reason to believe, that there is a definite amount, either plus or minus, that is capable of producing certain diseases, in

certain persons, in such localities as have their natural quantity of electricity reduced or disturbed to a specific degree, calculated to induce specific disorder.

The effects will be proportionate to the cause.

This regulation of balance is broken on many occasions long before the break of health sets in.

In some constitutions it occurs several months later than in others, as we are taught by experience.

Some people are scarcely liable to galvanic shocks, some are slightly so, and others are often slowly affected, or only after long intervals; and others escape altogether. I cannot believe that such differences would result were marsh miasm or poisons *inhaled* the exciting cause.

Such active poison, if in existence, and capable of destroying strong men in a few hours, would bring every human being in their reach under their destructive sway, without exception.

As free electricity prevails in the air, and most places, you may ask why epidemics do not prevail at all times?

I answer: because the integuments even of delicate human beings are not susceptible of ordinary or slight electric passes; but were the cause, as said to be, miasms, extracted from marshes by the heat of the sun, their violence on the contrary, would assail *all persons*.

To produce certain stages of epidemics galvanic disturbance must be in operation.

But it is seldom that such states of derangements traverse the atmosphere or globe: consequently we do not have such effects at all times, although electricity at rest or in motion, may be disturbed to a certain extent in every situation.

To cause specific disease, similar in all respects, some specific agent must be capable of producing peculiar symptoms of disturbing action.

So much appears to be necessary to be said, in regard to the cause of intermittent fever; and as space is limited one of the proper homœopathic remedies will be briefly considered.

In the treatment we must consider the cause, to be able to choose a remedy that will give us success. Therefore, if this be caused as I have concluded, there can be no remedy more indicated than electricity.

I suggest the use of that agent, to a greater extent than is now in vogue, as nothing can be more clear in the pathogenesis than that it is applicable in that disease.

From the pathogenesis of electricity I select the following symptoms as indicative of the propriety of its use:

Pains in the limbs; numbness in the tips of the fingers and toes; yawning, with shuddering over the body; alternations of chills and heat; chilliness with profuse sweat, with pains in the head and back; heat through the whole body, with chilliness on motion; intermittent pulse; dullness of the head; nausea; vomiting; sense of repletion in the stomach after a slight meal; creeping in the spine.

Under the head of galvanism we have recorded the following symptoms: Slight shaking, as in fever and ague; drowsiness; alternation of heat; and chilliness with giddiness; headache, and difficult breathing; burning flashes of heat; full and strong pulse; sour exhalations; sighing and dullness of the mind; vertigo, with flashes before the eyes; with deafness; and with alternate heat and chilliness; roaring in the ears; vomiting; oppression in the chest; nausea; red urine; numbness and coldness in the extremities.

The general symptoms of magnetism, and especially the symptoms of the positive pole, although they clearly indicate the propriety of its use in treating the disease under consideration, may be passed, so as to admit of more space for the pathogenetic symptoms of the negative pole, which in this disease is the one always to be preferred in making the application.

The symptoms of the negative pole are: pain in the limbs; bruised pain in all the limbs; stinging, burning pains in all the limbs and joints; stiffness and cracking in the joints; laziness and heaviness of the whole body; with anxiety; frequent yawning; sensations like those preceding fever and ague; shaking chilliness; feeling of coldness over the body without being cold; internal coldness; violent headache, accompanied with heat and chilliness; general sweat; great aversion to open air; despondency; heaviness of the head; crawling tensive pain over the brain; contractive headache between the eyebrows; sensation as if cold air was blowing on the body; roaring and singing in the ears; indifference to food; canine hunger; nausea; vomiting; feeling of repletion in the abdomen; oppression of breathing; aching and burning pain in the small of the back during rest and motion.

It seems strange, that this great agent for equalizing power of the nervous system, is so much overlooked by physicians.

The diseases that it is capable of curing or relieving are very numerous, and its power as a curative agent is but yet partially known: therefore, let the homœopathic physician avail himself of every thing that will give him success, knowing as he does, that a great power and prejudice are before him, to contend against, and beat him back in his endeavors to practise the true principles of medicine.

The old doctrines and prejudices that were taught and practised a thousand years ago are yet in vogue; and the homœopathic physician should be armed with every thing that may be successfully brought to bear when difficult cases present themselves. *The North Amer. Journal of Hom.* May, 1868.

Animal Poisons—A Sketch. By S. Lilienthal, M. D., of New-York.

Animal substances play as considerable a part in the homœopathic materia medica as they did in the pharmacopœa of several centuries ago, only with the difference, that where the ancient as well as the modern physicians relied chiefly in their use on eclecticism and prescribed their remedies experimentally or *ex usu in morbis;* we rely on a firm law, theoretically formed, but now proved to be immovably true by the experience of thousands of the disciples of Hahnemann. The subject of all remedies from the animal kingdom is too broad to be condensed in one article, we, therefore, leave out all isopathic remedies, as osteonecrosin, leucorrhin and a host of others; we also pass by such remedies as glanderine, hydrophobin, &c., as uncertain and therefore justly discarded by the majority of our school, although it cannot be denied, that in some rare cases they have been used beneficially by some of our best physicians. Neither will we examine the working of such remedies as Cimex, Murex, Sepia, &c.; but let us confine ourselves to the poisons of venomous animals as Apis-mellifica, Arænea-diadema, Bufo-suhytiensis, Melœ-cantharis, Crotalus-horridus, Trigonocephalus-Lachesis, Naja-tripudians, Theridion-curassavicum, Tarantella, Vipera-redi and Vipera-torva, and some others of less note.

By examining in a general way the poisonous action of these animals we find, no matter from what species the poison comes, the same results always follow, namely: "decomposition of the blood and affections of the nervous centres" in quantitative difference according to the intensity of the poison. In fact, all present in their symptoms more or less *a high degree of adynamia with sanguineous and nervous depression.*

Sanke-poison is only injurious, when carried into the circulation; brought on a healthy surface it may remain without effect. Some physicians even go so far as to doubt their action when introduced into the stomach, and recommend therefore that some person should suck out the poison from the bitten part, before the virus could contaminate the whole mass of blood, with only this precaution, that such a person must have his lips and his buccal cavity perfectly sound, and to spit out every drop of the matter drawn. But even with this precaution all danger is far from being removed; for persons have died who inadvertently swallowed some of the poison; and frequent experiments have shown, that even animals cannot swallow the poison of snakes with impunity; for we read, that milk, partaken of by a cobra, is thus rendered poisonous to animals; although it is well known, that no poison is ejected from the serpent whilst feeding, and therefore a little must at least exude, to render the food noxious. We do not mean by this to deny the benefit of extracting by suction the venom from the bitten part, for the mosquito, our well known enemy, gives us a practical lesson thereof; as if the little sucker be allowed to take its fill, he counteracts by suction the effects of his own poison and the bite is followed by very trifling irritation: but just drive him off or kill him, the instant its sting is felt, and we see and feel its

effects in a stronger and more lasting irritation; yea, in the tropics, even erysipelatous inflammation of a high degree is a frequent sequel of the bite of a mosquito. After all, what is the use to expose any person to such dangers, when we have in the cupping-glass and in similar instruments means, which perform the same process better, after the previous use of the caustic or the bistouri.

It is remarkable, that all over the world the same antidotes are employed and in a great many cases successfully. They are usually Ammonia in its different preparations, Assafœtida, Arsenic, Guaco, fluid Chlorine and especially alcoholic stimulants, the latter in quantities perfectly astonishing. That in such rapidly destroying cases the antidotes must also be given in quick succession and pretty large doses, is easily understood as a matter of course, till reaction takes place, when the intervals may be lengthened and the doses reduced. The first glimmer of benefit frequently is relief from the deathly sickness of the stomach; the breathing becomes easier, the skin recovers by degrees its natural warmth, and the drenching perspiration dries up. The more improvement sets in, the more sensible will he get of the nauseous taste of the medicine; inasmuch as the nervous sensibility of the palate returns, or when whiskey was used, symptoms of intoxication will begin to show themselves.

Before going into the symptomatology, allow me to give you the history of some cases; for they prove fully and convincingly the beauty and the truth of our great law.

Dr. Shaw, of New South Wales, Australia, relates:

The patient had been bitten by a black snake, one of the most deadly of the Australian species. He was seen two hours later, when the doctor found him in a very low condition, countenance pale and listless; body bedewed with a cold perspiration; the pulse small, rapid and fluttering, with great drowsiness and disinclination to speak or to answer questions. A ligature had been applied by a neighbor above the wound shortly after the injury was inflicted. The doctor excised the bitten part and around it, and encouraged free bleeding by letting the boy's father suck the wound for about ten minutes. Strong solution of Ammonia was then applied to the wound, and the Ammonia and Assafœtida draught given every hour with strong coffee *ad libitum*. After three hours he was out of danger.

Dr. Kuhn of Holland relates:

A soldier, twenty-two years of age, felt himself at the moment, when bitten by a Lachesis, like one struck down by lightning and lost his consciousness. In this state vomiting and purging came on. After an hour he revived, complaining about great oppression and anguish over the chest with constant inclination to vomit; the hand and arm inflamed and swelled up with great pains all through it; he had continuous fever and dry skin, and complained of great dryness and unquenchable thirst. For seven days he passed neither urine nor fæces; his whole face now swelled up, the eyes sunk in their orbits, the pulse got small and quick, his tongue dry and coated with constant thirst. The bitten part mortified, the fingers swelled

more and more and lost all sensation, blisters as from a burn formed over the whole arm, and amputation was performed, to save the poor fellow's life.

Dr. Blackburn of our Southern states says:

A negro woman was bitten on her ankle by a rattlesnake (crotalus horridus). The doctor saw her eight hours after the wound had been inflicted. She was deathly sick, cold rigors running over her; pulse 120, small and thread-like; the entire left leg swollen to twice its natural size. She complained of no pain in the bitten part, and even insisted that no wound had been inflicted. Considering her past all cure, corn whiskey was given her by the gill every few minutes, till she had taken two quarts within twelve hours, when, discovering some symptoms of intoxication, it was discontinued. She fully recovered.

He also relates the story of a man, who in a beastly state of intoxication, took hold of a large rattlesnake, and squeezed her very tightly, notwithstanding that she bit him several times. The snake at last, fully enraged and unable to extricate herself, bit herself, which soon relieved her from all torture, for the reptile speedily expired; whereas the man never complained of the least pain or uneasiness.

Dr. Leon Soubeyran records the singular case of a man, who, having been bitten by a reptile six years ago, experienced annually for a month, from the date corresponding to that on which the wound was inflicted, some pains in the injured arm. Mr. George Villers has also noted a periodically returning swelling in dogs, several years after they had been bitten by reptiles. Dr. Demarest relates the case of a woman, bitten at the age of 26 by a viper; she had for a period of 39 years every spring on the 28th of May an eruption of large vesicular bullæ on the forearm, attended with much itching, but no other disturbance of health.

Dr. Humboldt inoculated in 1854 many persons in New Orleans and Cuba with the poison of the rattlesnake, considering it the great prophylactic for yellow fever. He was led to the idea of this prophylaxis by the observation, that galley-slaves, brought from Mexico to Vera Cruz, who had been bitten by vipers on their journey, always showed decided symptoms of yellow fever. The effects of inoculation, modified as they were by the administration of Guaco, were: a peculiar expression of the countenance, similar to that in eruptive fevers, a drunken appearance of the eyes, which were injected; after this they suffered from headache, pains in the loins, pains in the salivary glands and in the direction of the different branches of the nerves, distributed through the face and teeth; lassitude, drowsiness, coryza and œdema of the face followed and jaundice set in with hæmorrhages and suppression of urine. During convalescence patients suffered from itching and cutaneous eruptions of different kinds.

Similar in character and in danger are the poisoned wounds inflicted by bees, wasps and other insects of that class, as even cases of death from such stings are on record. Thus we read of a man, who, in consequence of a sting of a wasp lost his intellectual power and lived for years in the condition of an idiot.

Dr. Marcy relates the case of a man, who was stung on the eyebrow by an incensed honey-bee. Shortly after he complained of a sudden prostration of the vital forces; severe vomiting and profuse diarrhœa set in; his face grew pale, his extremities cold, pulse feeble, scarcely discernible at the wrist; no redness or pain in the part stung, but severe griping pains all over the abdomen. After reaction had taken place, he still complained of bruised sensation all over; sides, hips, back, in fact he ached everywhere, and he was kept awake and restless during the whole night by loose urgent stools. Stinging, prickling, burning, smarting, itching sensation all over the skin. For several days he was troubled with a morbid excitement of the urinary organs and of the digestive apparatus with a hot and burning sensation and oppressive feeling all over.

We have now seen, that all poisonous bites affect all constitutions alike, producing everywhere blood poisoning and depression of the nervous centres. Hughes in his work on pharmacodynamics considers them both primary effects; although it is frequently the case, that the virus reaches the nerve-centres only by absorption and diffusion through the circulation. Let us now consider what the poison is and then the different ways of its destructive agency. Dr. Halford of Melbourne answers our first question: for he has discovered, that by the bite of the Cobra di Capello molecules (cellular) of germinal matter are thrown into the blood, and by their rapid multiplication destroy life. They are circular cells, 1700th of an inch in diameter, and containing a round nucleus, and other still more minute spherules of living germinal matter, all of which can easily be detected and microscopically examined. That such living germinal matter is the cause, we may easily corroborate by the effects of the trichina spiralis, producing also more or less all the symptoms of typhoid fever with its fatal results. That a disease, resembling measles, if not identical, has arisen from inhaling the dust of rotten straw, we all know from several reports, given in different journals during our late war; and if this is so, which I do not doubt for a moment, may we not hope to get more definite knowledge of the poisons of all zymotic diseases? Claude Bernard is therefore perfectly justified in the conclusion, that the action of poisons is strictly parallel to that of internal diseases. Let us take as the best type of blood-dyscrasia typhus: and we find this disease in all its different ramifications (for we are old-fashioned enough, to consider typhus and typhoid as mere varieties of one and the same disease) characterized: by dry tongue, stupor, delirium and great prostration. Dr. Jenner, who acknowledges also only one fever poison, is perfectly right, when he considers the intense prostration produced by the fever (as in our cases by the poison) tending to cut off the patient by pure weakness. Another certain and constant symptom of typhus is the swelling of the spleen, *the* organ, which purifies the blood and renders it fit to enter the circulation again, and it would be worth while, to prove by *post-mortem* examinations in persons, who have perished from poisonous wounds; if or how much the spleen is affected in such cases. The thread-like and quickened pulse, the cold extremities, the anxiety and oppression

of the chest, all show in typhus and in the prostration from poisoned wounds, that the heart is paralyzed by a poison and can drive the blood with but little force only to the remote points of the circulation. To support nature, in order to be strong enough to throw off this incubus and so eliminate every particle of this foreign intruder is in every such case our sole indication. Whiskey, brandy, alcoholic stimulants in some shape or other are our sheet-anchor in both diseases; and as in typhus the age of the patient gives the indication for stimulants, for the older our patient is, the more it is our duty to keep up the failing powers of life, so the deadliness of the poison will be the criterion for its application; for we know, that the bites of all reptiles are not alike in danger, and the larger the serpent, the broader its cheeks or the longer the teeth have remained imbedded in the wound during the bite, the greater will be the danger and the more doubtful our prognosis.

Yellow fever with its mental and physical depression is another case in point; and if such a similarity of symptoms exists, can we wonder any more of the great curative influence which in so many cases the different animal poisons have shown? Take again the spotted fever, another zymotic disease, falsely called cerebro-spinal meningitis, with its group of symptoms, consisting of trismus, retraction of the head, opisthotonos, pleurothotonos, rigidity of the recti-muscles, contraction of the muscles of the extremities, convulsions and subsultus tendinum; and we find their counterpart in the symptomatology of Apis, of Crotalus, of Lachesis, remedies recommended for such diseases by the most able physicians of our school: for it is chiefly by their operation upon the nervous-centres, that they affect the whole constitution in such a violent manner. Examine the pathogenesis of any of these remedies, and we find general tremors or extreme lassitude, jerking and convulsions, delirium and starting up in sleep, even frenzy, or weakness and numbness of the extremities, faintings, loss of consciousness, with sudden sinking of the powers of life and ending in death.

What Hahnemann called psora, what so many medical men call scrofulosis, is at any rate a blood-poison, which has to be eliminated, before even a relative state of health is restored. Whether scrofulosis and tuberculosis are one and the same disease, remains an open question, to the solution of which we have no time to enter; yet Budd and others consider the true tubercle a zymotic disease of specific nature, and that it is disseminated through society by specific germs contained in the tuberculous matter, cast off by persons already suffering from the disease. Villemin also proved several years ago the inoculability of the tubercular poison; and we do not therefore find it remarkable, that most of the animal poisons are recommended for these diseases. Baruch thinks highly of Theridion in phthisis florida and it has in his hands effected cures, when given at the beginning of the disease. Dr. Hilbers in England has much confidence in Crotalus, as alleviating the symptoms, especially the cough, of phthisis; and Lachesis shows a remarkable power of allaying the cough of pulmonary abscess and phthisis.

So far we have found all the animal poisons act alike, producing *adynamia with sanguineous and nervous depression*, and therefore removing the same state, when homœopathically indicated. But there must be a great difference between them, for another beauty of our system is, that we have no substitutes, no genera, but only individual cases and strictly defined remedies, to correspond to those cases. Experience has shown, that to get at those different actions we have to employ even the very highest dynamizations; and this explains the fallacy of so many otherwise good physicians, who deny any great curative power to such polychrests as Lachesis and Apis: whereas others, who are in the habit of strictly individualizing, and who are therefore steadily on the look-out for the characteristic symptoms of every case, consider the same remedies as some of our most valuable treasures, and use them with the utmost confidence and greatest success, at any rate as often as any other remedies in the whole materia medica.

Jahr in his "Klinisch Anweisungen" speaks beautifully of the qualitative differences of the dilutions, where he says: It is a known fact, that all remedies and poisons in large, massive or at any rate sufficient dŏses, produce their generic noxious effects, as all narcotics stupefaction, all drastics purging, all acrid poison, inflammation of the abdominal viscera (all snake poisons adynamia). If we now draw several circles one outside of the other and let the radii strike out from the centre one to the outside circles, we then see all the radii concentrated on a small space in the centre, but the more the radii diverge, the larger will also be the space between them. And thus it is also with remedies; in the centre, equal to the crude matter, we find only genera, but no individuals, but the more the radii diverge, the more characteristic differences will be between the remedies, belonging in the centre circle to one class.

By applying these considerations to the different snake-poisons, we find: that in relation to the decomposition of the blood, they rank thus: Crotalus, Vipera, Lachesis, Naja; but in relation to the neurotic symptoms Lachesis and Naja take the front rank, and Crotalus and the vipers follow. Of the insects and spiders Apis and Theridion affect more the sanguineous sphere and Bufo and Tarantella incline more to the affections of the nerves. The Crotalus poison produces always, and this sometimes in a few minutes: painful swelling of the bitten part, ecchymosis, bluish gray color and gangrene with hæmorrhages from nearly all the orifices of the body, and through this decomposition, depression of the nervous-centres, showing itself by twitchings and convulsions, delirium syncope, exhaustion and death from paralysis of the spinal nerves.

The viper's venomous bite also produces quickly gangrene and hæmorrhages from the different orifices. Cases are also on record, where the patients fell down immediately after the bite; but the paralytic symptoms always came at later period. *Post-mortem* examinations have shown, that the oppression of the chest with its torturing anguish is very frequently caused by the extension of the gangrene to the lungs and liver, although death may also supervene, as in the rattlesnake, by the depression

of the nerve-force, so necessary to the regulation of the functions of life.

In Lachesis, on the contrary, we see the nervous-centres attacked at first; the man is struck down, as if by lightning; unconsciousness is the first symptom; the sympatheticus, and vagus are attacked, thus disturbing the whole machinery of life and the decomposition of the blood, even to gangrene, are the necessary consequences of this want of vitality.

The Coluber-naja, the dreaded Cobra of the East Indies, although their bite is so often fatal, yet experience has shown that it must be so in a less degree; for snake-charmers and conjurors tame them and use them in their public exhibitions, using only the precaution to have red hot irons ready, fitting exactly the tortuous fangs of her snakeship. The Naja affects especially the pneumogastricus, and the neurotic symptoms predominate over the hæmatic. Hughes relates, that in the keeper, killed at the Zoological Gardens in London, death ensued from suppression of respiration, and the air-passages were filled with frothy mucus.

Now by comparing the different remedies together, we find among others the following characteristic differences. So *Crotalus* has lowness of spirits, *languor*, melancholy; *Lachesis* on the contrary: irritability. *Crotalus*: imbecility; *Lachesis*: insanity; in *Crotalus* we have: weakness of memory; in *Lachesis*: mental excitability and rarely absent-mindedness; *Crotalus*: constant drowsiness and sopor; *Lachesis*: sleeplessness or aggravation after sleep; *Crotalus* has thirst during the fever, *Lachesis* after the chill. With *Crotalus* most of the symptoms appear on the right side; the action of *Lachesis* is principally on the left, especially in paralysis; *Crotalus* affects fat persons more than thin ones and white people more than colored; *Lachesis* shows greater affinity to the female sex and is more adapted to thin and emaciated than to fat people.

Take again Lachesis and Naja, two remedies, so invaluable in organic or functional diseases of the heart, whether it be hypertrophy or valvular disease, or mere nervous palpitation, and which Rutherford Russel considers identical in such a degree, that he utters the hope, that the poison of the more frequently found Cobra might entirely supersede the to him doubtful Lachesis; and yet what great differences do we find even in those few and meagre provings, instituted with Najatripudians. Most provers were affected with intense depression of spirits, with a melancholy of that peculiar kind, that they had the full perception of what to do, yet they were unable to overcome the irresistible inclination not to do it; whereas the *Lachesis* prover is peevish, fault-finding, with his excessive desire to quarrel and dispute, from mere desire of contradiction. *Naja* has aggravation by motion, *Lachesis* during rest; the *Naja* symptoms improve in the open air, by smoking or taking alcoholic drinks,—the very things which aggravate the symptoms produced by Lachesis; *Naja*: amelioration by sleeping; *Lachesis*: aggravation after sleeping; *Naja*: aggravation by deep inspiration, whereas in Lachesis the predominance is amelioration from inspiration and from deep respiration:—indices enough, to show that there

is a vast difference between the two poisons and substitution always a mistake.

Turning to our second class, comprising Apis, Acanea, Bufo, Cantharis, Tarantella, Theridion and a host of others, we find that all of them concentrate their action more or less: 1. on the urinary organs; 2. on the nervous system; 3. on the external and internal skin; 4. on the sexual organs.

Considering their action on the urinary organs, we find that Cantharis exerts a specific influence on the urinary organs, inflaming the whole mucous tract from the kidney to the urethra, showing as primary symptoms burning pains and strangury; constant desire and yet inability to micturate, and frequent micturition only secondarily as curative effect or caused by paralysis of the sphincters; the contrary is the case with *Apis*, where frequent and excessively profuse discharge are primary, and the scanty and rare micturition secondary effects. In *Apis* we find the strangury always the effect of a mechanical injury or caused by affinity, the inflammation spreading from other organs, as *e. g.*, the womb, to the urinary organs; whereas the same disease has to start from the urinary organs, if Cantharis should be indicated. So also the irritation of the sexual organs even to abortion, is in Cantharis caused by the irritation of the urinary system; whereas in Apis the sexual organs are primarily at fault, exciting pathological states afterwards in the neighbouring organs. Albuminous urine belongs to both, but in Cantharis, although the urine may be highly albuminous, the quantity is always small, containing even shreds or casts of the uriniferous tubuli; whereas in post-scarlatinal dropsy and other cases of Bright's disease, we have to look for the cause of the disease to other organs, in order to find the symptoms covered by Apis. Generally Apis acts only beneficially to remove the albumen from the urine, when there is an unabsorbed effusion remaining after an inflammatory state of the serous membranes, showing itself in an œdematous state of the cellular tissue. Other differences are in their aggravations and ameliorations: for in Apis we find predominance better in the open air, from cold, from washing or wet applications, when rising from bed or from uncovering, while the Cantharis patient fares better in-doors, during rest, from warmth and from wine.

Upon the nervous system neither Cantharis nor Apis have great primary relations, and in tetanic or epileptiform convulsions, in the prostration of diphtheria or even in coma we would only find the Spanish Fly indicated when the urinary symptoms correspond; and although Apis has a good reputation in hydrocephalus, yet the unknown writer of the prize essay on meningitis basilaris is perfectly right to propose Glonoine for the nervous affection, and its alternation with Apis in a high dynamization, only immediately before the stage of exudation sets in. *Apis* shows rather a powerful primary action on the great sympathetic, and cures thus uncomplicated pure intermittents, especially when the paroxysm comes on in the afternoon and the chill commences in front; but periodicity is a symptom belonging more or less to the whole class of animal poisons; and we find them frequently indicated in protracted or mismanaged intermittents,

although the differential diagnosis is also here paramount. Look only at an Aranea-diadema intermittent with its predominating chilliness and lassitude, reminding one of the white Hellebore, and compare it with those inveterate cases, which Lachesis will alone cure, arousing the nervous energies to new life, and enabling nature thus to drive out the double-headed monster of a miliaria and quinine cachexia.

In the diseases of the sexual organs we find Cantharis only indicated where exalted sensibility shows itself, as in satyriasis, nymphomania, with violent itching and burning in the pudenda; the same agency explains to us also its action to promote fecundity, or to expel moles, dead fœtuses or the placenta. Of far greater value are the other animal poisons; and Apis and Lachesis stand justly in the front rank of our remedies for sexual diseases. Yet they differ already on the sides affected; and Apis shows also in its symptoms more of the congestive type, as bearing-down pains in the pelvis; painful sensitiveness of the cervix during coition; congestion and tenderness of the ovaries; albuminous leucorrhœa; engorgement and ulceration of the os uteri; whereas Lachesis and Theridion have predominant nervous symptoms, for in Lachesis we see the sexual symptoms often complicated with hysteria and heart symptoms. How often do we hear females complain of a burning pressure from within outward on the top of the head, and relieve them quickly by a few pellets of the Lachesis; another woman has headache of the worst kind during her climaxis, a perfect sea-sickness, and Theridion is our weapon for its removal. Other frequent complaints during the climaxis are a sinking feeling at the pit of the stomach, a sensation of suffocation, a kind of pseudo-narcotism, symptoms, which we find nowhere so well described as in the pathogenesis of these animal poisons; and it could not well be otherwise, for they are produced by the same cause in the disease and in the remedy: by a detrimental substance, circulating in the blood, which must be eliminated before the equilibrium can be restored.

Before concluding let us glance only at their effect on the internal and external skin, and here the same rule holds good, Cantharis will only be indicated in erysipelatous inflammations of the mucous membranes or in chronic skin-diseases, when the urinary organs are also affected. Apis does not go very deep neither externally nor internally; and Hughes characterizes the indication for Apis to be œdema. In skin-diseases the affection dare not go to the destruction of tissue, but is accompanied by excessive itching and burning. How different again Lachesis works, our great remedy not only for gangrene, but for all diseases where destruction of tissue is characteristic: as for carbuncle, malignant pustule, diphtheria, pyæmia. No poison undermines health more surely, although slowly, than scrofulosis in its diverse forms; and if experience shall prove that its antidote is found in Theridion, we may thank homœopathy for another boon, as our duty is not only to relieve pain; for to prevent diseases should be the aim of our lives.

We have so far only thrown out hints for further study; to do justice to our subject, a whole monograph could be written.—*North American Journal of Homœ.*, May 1868.

We have to tender our best thanks to the Editors of the following Periodicals for regularly exchanging with us :—

The Indian Medical Gazette.

The British Journal of Homœopathy (Henry Turner & Co. London.)

The Monthly Homœopathic Review (Henry Turner & Co. London.)

The United States Medical and Surgical Journal.

The American Homœopathic Observer.

The Western Homœopathic Observer.

The "Homœopathic Sun."

The American Homœopathist.

The Indo-European Correspondence.

The Hindoo Patriot.

The Bengalee.

The Indian Mirror.

The Well Wisher.

The National Paper.

The Dacca News.

The Indian.

We shall be glad to exchange with any Medical Periodical in the world.

Books, &c., for review, to be sent, carriage paid, to the Editor, direct.

SERAMPORE PUBLIC LIBRARY

THE

CALCUTTA JOURNAL

OF

MEDICINE.

VOL. II.] July, 1869. [NO. 7.

A SKETCH OF THE TREATMENT OF CHOLERA.

(Concluded from p 191)

Diarrhœa, after reaction has fairly set in very seldom leads to fatal consequences. A slight laxative is, in common, beneficial until the functions of the kidneys are established, we must not, therefore, be too officious to check any diarrhœa, that might be lingering on after the violence of the disease has subsided, so long as no urine is secreted, the intestinal discharges being not unfrequently vicarious of the renal secretion.

We must, however, attend to the diarrhœa if it continues after the establishment of the urinary secretion, or even before that, if it is found to be exhausting, exercising a depressing influence upon the pulse. In the latter case a return to the use of the remedies that were employed during the full development of the disease is likely to be attended with benefit, the dilutions used being higher. Should this fail we should at once address our remedial agents chiefly to the kidneys and we shall find to our astonishment that the urine has been secreted, at the same time that the diarrhœa has been checked.

For the diarrhœa that continues after the restoration of the renal secretion, the best remedies are *phosphoric acid, china, ferrum*, and *podophyllum*. We use the last-named drug when the discharges indicate an excessive secretion of bile, that is, great irritability of the liver. For Phosphoric Acid, China, and Ferrum no particular indication can be given. Failing with one we use either of the others. We always begin with Phosphoric Acid. It is very seldom that the above remedies disappoint us, but should they do so, we should not hesitate to use massive doses of the so-called astringents such as Gallic Acid, Tannic Acid, Acetate of Lead, Chalk, and even Opium.

Tympanites is a most distressing, and if unchecked may, by interfering with the play of the diaphragm, prove a most dangerous, complaint. Tympanites is distension of a portion, or of the whole, of the alimentary canal with gas. The generation of gas in the canal is due to decomposition of its contents, favored by either defective or morbid secretion, and want of tonicity of its muscular coats; or gas may be secreted by the walls of the canal. The treatment of tympanites will, therefore, consist in causing the re-establishment of the secretions that are altogether wanting or defective and correcting those that are morbid, in imparting tone to the canal, and if need be, in causing evacuation of its offending contents.

The remedies that have been found useful in this affection, especially as a sequela of cholera, are *nux vom., mercurius, sulphur, carbo veg.*, and *lycopodium*. We prescribe—

Nux vom. generally when the distension is due more to torpor of the bowels than to any defect or morbid character of their secretion. It is particularly useful when the distension is chiefly in the stomach, also when there is defective in-pouring of the hepatic secretion into the intestines from torpor of the gall-bladder and of the biliary ducts, in other words, when there is *biliary* congestion.

Mercurius when the distension is due to defective secretion from the liver, and when along with this there is fœtor in the mouth.

Sulphur when there is defective secretion of the whole alimentary tube, depending upon venous congestion of its mucous membrane. Sulphur is especially useful where *merc.* has failed,

or where much mercury has been used in the treatment of the disease.

Carbo veg. when we have to correct morbid secretion. "It is most suitable for cases where the gas is generated by the walls of the viscera rather than from fermentation of the ingesta; where it distends the stomach rather than the intestines; and where the tendency is to diarrhœa rather than to constipation."—*(Hughes.)*

Lycopodium: This drug vies with Carbo in its power to correct foul secretions. It is particularly applicable when the distension is in the intestines and when there is constipation.

Failing with the above remedies we may think of *china*, *asafœtida*, *capsicum*, and *camphor* in dilutions, say 3.

Sometimes an enema of warm soap-water and turpentine, or soap-water and asafœtida, with or without castor oil, affords remarkable relief by evacuating the contents of the lower bowels, and should not therefore be neglected. Enemas, however, should never be used in cases of extreme prostration, because then they are retained, the bowels having no power to re-act upon them, and thus add to the mischief already existing.

The application of cold wet-sheet over the abdomen greatly assists in reducing the tympanites, probably by condensing the gases within, and perhaps also by acting upon the nerves of the intestines, through the cutaneous nerves of the abdomen.

Acidulated drinks are both agreeable and useful. We prefer lime-juice to other acids. In tympanitic conditions sugar is best avoided. Toast water probably for the charcoal it contains is useful. Brandy may be allowed.

The inflammatory conditions of the various tracts of the digestive tube is attended with more or less fever, and are therefore best considered under the treatment of the fever.

(III.)—Treatment of the Fever.

When this fever is simply an exaggerated form of reaction, due either to the free use of stimulants during collapse, or to the inherent sensibility of the organism, we may expect it to subside of itself. If it would not, a dose or two of Aconite would help it to do so. It is not always, however, that we have this favorable termination of the febrile movement that sets in after reaction. Generally we have to contend against a most obstinate, low

form of fever, very little differing from the genuine typhus or typhoid.

The fever that succeeds reaction is generally in association with congestion or even inflammation of some one or other of the important viscera. It is absolutely necessary, therefore, to arrive at a correct diagnosis, in order to successfully combat the disease.

If it is the brain that is affected, we shall generally succeed with *belladonna;* if the lungs, *bryonia* and *phosphorus;* if the stomach, *arsenic, nux vom., bryonia;* if the small intestines, *mercurius sol., bryonia;* if the liver, *merc., bryonia, nux v.;* if the colon, that is, if we have dysentery, *mercurius corrosivus, nux vom., ipecacuanha, carbo veg.;* if the urinary apparatus, *cantharis.* In all cases, when the febrile excitement runs high, we premise the treatment with *aconitum.*

When the fever is uncomplicated *rhus tox.* and *phosphoric acid* are the principal remedies. *Phosphoric acid* and *rhus* are also very good for cerebral and pulmonary complications.

The application of cold water by the wet-sheet to the head, the chest, and the abdomen greatly tends to the subdual of the inflammatory condition of the organs which they enclose. The application of cold water to the head is already in vogue, and in fact, in the eyes of Natives, distinguishes European treatment from that pursued by the Kavirajs and Hakims. But the application of cold water to the abdomen and chest for inflammation of their cerebral organs has not yet been recommended. On the contrary, the application of the cold-sheet to the chest for pneumonia, &c., is still looked upon with horror, just as the Kavirajs still look upon the application of cold to the head in inflammations of the brain and meninges. We can speak from personal experience of the great benefit and the immense relief afforded by these local applications.

(IV.) Treatment of the Asthenia.

The asthenia that we have described above as constituting a sequela of cholera is the most formidable condition of the system that we have to contend against. It is the most to be dreaded inasmuch as it indicates such an utter prostration as to baffle all sorts of treatment, and all our remedial agents. The very fountains of life seem as if dried up. Medicines do not act,

simply because there is not vitality enough in the organism to react upon them. Nevertheless such cases are not to be neglected and given up as absolutely hopeless.

The best remedy that we know of, in this condition, is *china*. It is singular that when we were ignorant of the Hahnemanian system, we used to derive the greatest benefit from Quinine. And we now find that when China fails Quinine succeeds, and *vice versâ*. *Phosphoric acid*, *carbo veg.*, and *rhus tox.* would deserve a trial when *china* fails. *Arsenic* (high dilutions) and *moschus* should be thought of, when nothing succeeds, and when the fear of death is great.

When suppurations take place *hepar sulph* and *silicea* are the remedies that do great service. *Silicea* seems to be especially useful after the abscesses have burst or have been opened. In inflammation and suppuration of the parotid glands, *lachesis* is the remedy. *Belladonna* and *rhus* deserve a trial just at the commencement of the swelling. When after the use of *lachesis* the discharge still continues, *silicea* should be used. *Mercurius*, unless massive doses of mercurial preparations have been previously used, would also be an appropriate remedy.

When the bed-sores become gangrenous, *lachesis*, *arsenic*, and *carbo veg.* should be employed according to their indications. The best local application is Arnica or Calendula lotion or ointment. If there be much fœtor Carbolic Acid would form a good dressing, with water, or better with glycerine or sweet-oil. Charcoal poultices are also of use.

For ulcerations of the mouth the best remedy is *nitric acid*. When there is much bleeding from the gums and when it resists the action of *nitric acid*, *carbo veg.* and *hepar sulph.* should be thought of. Arnica gargle would be highly useful. When the bleeding is profuse and would not be checked by the above means, local applications of Tannic Acid, Turpentine, or the Tincture of Steel should be had recourse to.

When the eyes become congested and the corneæ ulcerated, *pulsatilla* has appeared to us to be the best remedy. We should not forget that this condition is but the expression of the general asthenia and can only be corrected by remedies addressed to the whole constitution. We should not, therefore, in obedience to the ignorant demands of the friends of our patients,

put any irritating lotions or drops into the eyes. Much mischief, and never any good, is done in this way.

LIST OF REMEDIES USED IN CHOLERA, ARRANGED ALPHABETICALLY.

[N. B.—The relative importance of the remedies is indicated by the typography.]

ACIDUM HYDROCYANICUM, 6.
Acidum Nitricum, 3, 6.
ACIDUM PHOSPHORICUM, 3, 6.
ACONITUM, 6, 30.
Antimonium Tartaricum, 3, 6.
ARSENICUM, 6, 12, 30.
Asafœtida, 6.
BELLADONNA, 6, 30.
BRYONIA, 6, 30.
CAMPHORA, (Saturated Tinct.) 3.
Cannabis Indica, 6.
Capsicum, 6.
CARBO VEGETABILIS, 6, 30.
Chamomilla, 6, 12.
CHINA, 6, 30.
Cicuta Virosa, 6, 30.
Cina, 3, 6.
COBRA, 6, 30.
Colocynth, 6.
Croton Tiglium, 6.
CUPRUM, 6, 30.
Elaterium, 3, 6.
Eupatorium,
Ferrum. 6, 30.
Hepar Sulphuris, 9, 30.
HYOSCYAMUS, 6, 30.
Iris Versicolor, 3, 6.
JATROPHA CURCAS, 3, 6.
LACHESIS, 6, 30.
Lycopodium, 12, 30.
Mercurius Corrosivus, 6, 30.
Mercurius Dulcis, (Calômel.)
Mercurius Solubilis, 6, 12, 32.
NUX VOMICA, 6, 12, 30.
Opium, 5, 30.
Podophyllum, 6, 12.
Pulsatilla, 3, 6, 30.
RHUS TOXICODENDRON, 6, 30.
SECALE CORNUTUM, 6, 12, 30.
Silicea, 6, 12, 30.
STRAMONIUM, 6.

SULPHUR, 6, 12, 30.
Tabacum.
VERATRUM, 3, 6, 30.

LIST OF REMEDIES ARRANGED ACCORDING TO THE STAGES IN WHICH THEY ARE USED.

I.—PREMONITORY STAGE.

ACIDUM PHOSPHORICUM.
Aconitum.
Arsenicum
CAMPHORA.
Carbo Vegetabilis.
Chamomilla.
China.
Ipecacuanha
Nux Vomica.
Phosphorus.
Pulsatilla.

II. STAGE OF FULL DEVELOPMENT

Aconitum.
ANTIMONIUM TARTARICUM.
ARSENICUM.
CAMPHORA.
Croton Tiglium.
CUPRUM
Elaterium.
Iris Versicolor.
JATROPHA CURCAS.
Mercurius Corrosivus.
Mercurius Dulcis, (Calomel.)
SECALE CORNUTUM.
Tabacum.
VERATRUM.

III.—ALGIDE STAGE OR COLLAPSE.

ACIDUM HYDROCYANICUM.
ACONITUM.
ARSENICUM.
CAMPHORA.
CARBO VEGETABILIS.
Cicuta Virosa.
COBRA.
CUPRUM.
SECALE CORNUTUM.
LACHESIS.
VERATRUM.

V.—Stage of Sequelæ.

ACIDUM PHOSPHORICUM.
Acid Nitricum.
Aconitum.
Arsenicum.
Asafœtida.
BELLADONNA.
BRYONIA.
Camphora, ℥.
Cannabis Indica.
Capsicum.
Carbo Vegetabilis.
CHINA.
Cicuta Virosa.
Cina.
Eupatorium.
Ferrum.
Hyoscyamus.
Lachesis.
Lycopodium.
Mercurius Solubilis.
Mercurius Corrosivus.
NUX VOMICA.
Opium.
Podophyllum.
Pulsatilla.
Rhus Toxicodendron.
Stramonium.
SULPHUR.

List of Remedies that may be required in massive doses as adjuncts in the Treatment of Cholera.

Acetate of Lead.	ETHER, Chloric.
ALCOHOL,—Brandy and Wine.	ETHER, Nitric.
Ammonia.	ETHER, Sulphuric.
CARBONATE OF SODA.	Gallic Acid.
Chalk.	OPIUM.
CHLOROFORM.	QUININE.

External Applications.

Chloroform. Mustard Plaster. WET-SHEET (Local).

GRIEVANCES OF HOSPITAL ASSISTANTS, OR THE SO-CALLED NATIVE DOCTORS.

It is a boast of British statesmen that their Government of India is the most efficient Foreign Government hitherto known, and that the main policy by which it is peculiarly characterized is that of real equality. How far this statement is corroborated by facts, so far as the medical profession is concerned, we have had several occasions to point out. The introduction of sanitary reforms into this country has always been acknowledged. Several high appointments have already been created for British officers with the view of promoting this object, and large sums have been spent and are being spent in cantonments where soldiers are located. It is also tacitly owned that the chief instrument by which the country at large may be benefited as regards sanitation, are the Native Medical Subordinates. But the government of India has never paid any serious attention to bettering the condition and prospects of this most important class of public servants.

It is not however the sin of omission only that the government is guilty of, but the sin of commission as well. Of late the government has improved the condition and prospects of public servants in every department almost, especially those where Europeans covet appointments. But the case of Sub-Assistant Surgeons has been ignored. The latter however did not omit to lay their case before the Viceroy in Council, on more occasions than one. Their prayer was rejected on the economic ground of supply and demand—a ground which was never urged in any other case, and which would certainly have been denounced as mean and unworthy of being brought forward by the governor of a vast continent in a case like this, if Europeans had been concerned. But we have not reached yet the height of absurdity which our government is capable of. About the time that the prayer of Sub-Assistant Surgeons was refused, the necessity of granting increased pay to the apothecary class (European Medical Subordinates) was urged before the government. This necessity was readily accepted, an elaborate notification was drawn out, in which, be it remembered, the superiority of Sub-Assistant Surgeons to the junior members of the apothecary class was acknowledged in explicit terms, and higher pay was authorized to the

Apothecaries—much higher in comparison to what the Sub-Assistant Surgeons are still in receipt of. But this was not all. About the time that the Sub-Assistant Surgeons were refused what was justly due to them, a new appointment was created in the Medical department (that of Inspector-General of Hospitals in the Upper Provinces) at a monthly cost of about 3000 Rupees. No sooner was this appointment created and filled up, than it was found out that there were not duties enough to occupy one officer's entire time, and that these few duties were already being discharged by existing appointments. The new appointment was in consequence formally abolished, but it was kept on as a sinecure for the officer nominated to it, as long as he could not be provided for elsewhere. So much for the economy, and efficiency, and the policy of equality of the Government of India.

The above facts have already appeared in some of the previous numbers of this Journal, in different places. They are now merely shewn at one view. In the present Number we have to notice another instance of gross injustice and open defiance of the policy of equality, which have been manifested by the British Government in reference to the case of Native Doctors. A little more than a year ago when the position and prospects of the apothecary class were improved, a similar concession was made to the Native Doctors (we cannot make out why the economic ground of supply and demand was not put forth in this instance), to whom the new designation of Hospital Assistant was assigned. In both the cases increase of pay was allowed, pending the fulfilment of certain conditions, amongst which was the passing of an examination. As regards the Apothecaries, provision was almost immediately made for conducting the examinations, and the different grades of Apothecaries who have fulfilled the new conditions are receiving the increased pay with retrospective effect from 27th May 1868. But the poor Native Doctors, bereft as they are of any means for creating political agitation, are still languishing under the old regime, with no hope of any improvement in their position and prospects, or with what hope may be gathered from the following: Some of them had the audacity to draw the increased rates of pay for two or three months, and in some instances these

higher rates were actually passed to them, under a mistaken interpretation of the Government Order on the subject. The mistake was pointed out by higher authorities, and the additional sums drawn have been retrenched from the subsequent pay of Native Doctors. The question remains at this stage up to the present time, and one of the Deputy Inspectors General of Hospitals has, we hear, given the Native Doctors in his Circle to understand that they will have to wait for another year before they can hope to reap any of the advantages of the Government Order of 5th June 1868. In presenting the above case to the public, we do not offer any remarks. We only wish to know whether the Government would have acted in the manner it has done, if the interests of Europeans had been involved in this case.

DR. FAYRER ON PARACENTESIS OF THE KNEE-JOINT IN THE TREATMENT OF ITS SYNOVITIS.

In the June No. of the *Indian Medical Gazette* we have details of five cases of synovitis, with effusion, of the Knee-joint given by the eminent Professor of Surgery in the Medical College of Bengal, in all of which cases the treatment by paracentesis has been remarkably successful. Wounds communicating with the cavities of joints, especially of the larger ones, like those communicating with the cavities of the serous sacs, have been always and very justly looked upon with great apprehension. But if in diseases involving serous or purulent effusions of the latter, that is of the serous sacs, acknowledgedly much more delicate structures than synovial membranes, paracentesis has been practised not only with impunity but with benefit, why will not the same analogy hold with respect to similar diseases of the synovial membranes?

On the strength of this analogy paracentesis of articular cavities and even injections of iodine into them have been recommended and practised with advantage; and the profession in India has been indebted to Dr. Fayrer for the proof he has afforded by actual trial that the practice of at least, simple tapping of the Knee-joint may be resorted to, not only without danger, but with curative results, when ordinary means had failed to procure relief.

Dr. Fayrer has not yet had any experience with injections of iodine after paracentesis, and confesses that he "should feel no little anxiety in thus interfering with so delicate and important a cavity as the Knee-joint."

In inveterate chronic cases which seem to resist all sorts of treatment, we think, practitioners would be justified in having recourse to injections, but we do not hesitate to condemn their use in acute cases.

Dr. Fayrer's success with paracentesis seems to have resulted from obviating "the chief source of danger," which as he justly observes, "appears to be the access of air, or perhaps, according to more recent views, not so much the air itself as the organic germs that pervade the air." The access of air was prevented by applying over the puncture lint saturated with gutta percha dissolved in chloroform. "The wound, if it did not immediately close, was subsequently dressed with carbolic acid in the usual way."

It must be remembered, however, that paracentesis of joints should be had recourse to only as an extreme measure, when the ordinary means have failed. And we have no doubt, in view of the immense superiority of the homœopathic over the allœopathic system, the homœopathic Surgeon will have very seldom to resort to it. He should, however, be acquainted with the method of procedure and its utility, so that if driven by necessity he should not hesitate to adopt it for the benefit of his patients.

The success of paracentesis of joints in disease should make us more hopeful, than we hitherto were, in cases of injuries communicating with their cavities. While our anxiety should not be the less, our confidence in their management would be legitimately increased by our knowledge of the conditions by which union of the wounds may be brought about, and destructive inflammation of the articular structures arrested, the chief of which are—absolute rest, exclusion of air, and the use of antiseptics. In addition to carbolic acid, we would particularly recommend the use of Arnica and Calendula, the latter being especially serviceable when suppuration of the injured parts is profuse.

WHOOPING COUGH OR PERTUSSIS.

Translated from Dr. Kafka's "Homœopathische Therapie."

By Leopold Salzar, M. D.

Whooping Cough is a disease of a combined character, consisting of a catarrhal process in the bronchi, connected with a simultaneously existing spasmodic affection of the glottis, of the diaphragm, and of all the muscles presiding over the expiratory function. There is then, besides the affection of the bronchial mucus membrane, derangement of certain cerebral and spinal nerves (Vagus, Phrenicus and nervi intercostales). Hence it is, that impressions affecting the brain or the spinal cord, as for instance laughing, crying, fright, etc., are capable of producing whooping cough.

Anatomical character.

Nearly in all cases one finds catarrh of the bronchi and trachea, swelling and exudation of the bronchial glands; other diseases, such as lobular pneumonia and pulmonary œdema, hyperæmia of the cerebral vessels and extravasation from them, belong to the complication of the fundamental disease now under consideration; while the exudation into the meninges and ventricles, the bronchiectasy and the emphysema belong to the sequelæ of whooping cough. The examination of the Nervus Vagus and Phrenicus has not disclosed anything particular.

Ætiology.

Children from the first to the tenth year are mostly subjected to this affection, while nurslings are, as a rule, spared; usually it is only once in their life that childern are attacked by it. Whooping cough often occurs epidemically, and is considered as contagious; the exhalations of the lungs is looked upon as the bearer of the contagium. In the stadium convulsivum, the acme of the disease, the contagiousness seems to be evolved in the greatest intensity. Grown-up people, mothers, sick-nurses have been infected in this way by whooping cough. The epidemic occurs at any period of the year and in any climate; the end of the winter season is the most favorable for its appearance; sometimes a whooping cough epidemic combines itself, or alternates with, the measle-or scarlatina-epidemic.

Whooping cough is always a primary disease; secondarily it may associate itself, under epidemic influences, with any bronchial

affection, as also with tuberculosis. As an occasional cause we have only to mention exposure during an epidemic season.

Clinical Course, Issue, Prognosis.

Practitioners distinguish three stages; they are however not distinctly marked from each other, and it would therefore appear that the above distinction is, strictly speaking, not tenable.

The first stage, the stadium incrementi seu catarrhale, is marked by the catarrh with which the whooping cough begins, (coryza with affection of the conjunctiva are the first signs; bronchial catarrh follows afterwards.) The first signs consist then in frequent sneezing, lachrymation of the eyes and itching of the same, watery running from the nose, to which phenomena a dry cough is associated. Often we observe also catarrh of the fauces, with swelling of the uvula and tonsils. In rare cases, there is also a more or less severe intestinal catarrh at this stage, this catarrhal process is usually accompanied by febrile symptoms, which however cease after a few days, with the exception of the bronchial catarrh, all the other catarrhal symptoms disappear; the cough becomes loose and seldomer, but acquires the peculiarity of appearing at the second, sometimes at the third or even at fourth week, in frequent shocks, accompanied by long lasting inspirations, during which the children get red and lose their breath. An exact observer can, from these phenomena, prognosticate with all probability, the development of the whoop. Most of the coughing fits appear in this stage, in the night hours. It is not rare, that these fits grow seldomer and milder and finally cease altogether, so that the whooping cough has terminated in its most mild and imperfect form.

The second stage, stadium convulsivum seu nervosum, distinguishes itself by a most peculiar character of the coughing fits. After the respiration has become free, after usual gaiety and appetite have returned, the children feel almost unexpectedly a tickling in the throat and are attacked, when laughing, crying, drinking, eating, running or when having been frightened, often even without any apparent cause, by a crampy cough of the utmost severity. Some children become, before the fit, restless, anxious, and try to lay hold on their mothers, nurses, or on other persons of acquaintance, or on tables, chairs, etc; then occur,

in rapid succession, some short coughing shocks, followed by some long drawn, whooping inspirations, resembling the cry of a donkey. The tune is so peculiar, that, once heard, one can hardly forget it. The inspiration is again followed by an expiration attended by the more severe and lasting shocks, whereafter the inspiration grows anew longer drawn and more difficult than the first; the respiratory muscles, particularly the glottis and the diaphragm are attacked by tonic cramps; the children cannot get breath, there is asphyctic anxiety; some children become at the same time of a dark red color in the face, some become cyanotic, the eyes protrude and lachrymate, the conjunctiva is injected, the tongue is rolled, blue and half stretched out of the mouth; the lips too get blue, the face appears to be swollen, saliva flows out of the mouth, the limbs become convulsively distorted, hot or cold perspiration appears on the face and extremities, sometimes urine and stool are involuntarily voided. This state having lasted 10-20-30 seconds, frequent and short whoops occur again, during which the stomach in consequence of the still existing contraction of the abdominal muscles and of the diaphragm, voids its contents and large quantities of viscid mucus are thrown up. The children are then extremely exhausted, for sometime afterwards they continue to have the red face, with a hot glowing head and accelerated pulse, increased thirst and violent headache; in some others the cyanosis loses itself very slowly and one finds even hours after the fit their lips and nails blue, a bluish tint in the face and an œdematous swelling around the eyes and lips; some are, after the fit, pale, weak and exhausted, some others, particularly very young children, after the fit has been overcome, fall into an eclamptic or soporous state. In some children the conjunctiva is found in a state of ecchymosis, in some others bleeding from the mouth, nose or ears, rarely of the lungs, occur. Hernia and prolapsus recti have arisen during severe fits.

After no long a time, usually after a refreshing sleep, the children recover, begin to play and their appetite returns.

The severer the bronchial catarrh the oftener the fits repeat themselves, especially at the commencement of this stage; they come on more at night than at day-time, arise sometimes without any apparent cause, at other times they are brought on by those

occasional causes mentioned above, by exposure, cold drinking, too rapid swallowing, by smoke, or by coughing fits of other children.

The duration of a single fit is usually 30-60-80-120 seconds; fits of longer duration are rare. The number of fits within 24 hours varies. At the acme of the disease there are often 10-12 fits during the day and 15-20 during night, later on they diminish so as to be reduced to 6-8 within twenty four hours.

This stage lasts from a fortnight to two months, sometimes even longer.

The third stage, stadium decrementi, is again catarrhal; cough becomes seldomer, the expectoration appears purulent and liquid, the spasmodic phenomena retrograde, while those of the catarrhal character continue moderately, till they cease altogether.

The physical examination during the interval reveals signs of bronchial catarrh only in uncomplicated cases; during the fit the examination is seldom possible.

Some forms of whooping cough are of a very severe character and undergo complications, which often threaten life or the future health, or they leave behind them after-diseases of such importance, that some patients have to suffer from them for their whole life-time, as emphysema, bronchiectasy, etc.

In the majority of cases the issue is favorable; cases may terminate in coma, and this suddenly, in consequence of a too long lasting spasmus glottidis, or of a sudden rupture of the already emphysematized lungs, or of cereberal apoplexy or from a rapid development of pulmonary œdema; fortunately such an issue belongs to the rarities.

Another part of the dangerousness and of the lethal issue of whooping cough forms its complications, as bronchitis capillaris, pneumonia, pleuritis, meningitis, tuberculosis, especially of the bronchial and mesenteric glands, hydrocephalus, etc.

Chronic catarrh of the bronchi, emphysema, bronchi-ectasy and hernia, sometimes also prolapsus recti form the sequalæ of whooping cough.

On the whole whooping cough represents a dangerous, but in the majority cases, a favorably terminating disease of children. The younger the children and the more delicate their organization the more dangerous it is; often however one sees even the most stormy attacks terminate favorably.

Therapeutics

The results of Homœopathy in the treatment of whooping cough are far more favorable than those of any other therapeutic system, and this especially for the reason that this method of treatment strictly keeps to the status morbi, analyzes and minutely individualizes each case and chooses its remedies according to the law of similars, without going into super-learned and sophistic speculations and indications.

The treatment may be divided into four parts, all of them equally important, viz. the treatment of the *bronchial catarrh*, of the *convulsive stage*, of its *complications*, and of the *sequelæ*.

The catarrhal stage does not offer any particular phenomena besides the acute bronchial catarrh; we refer therefore altogether to what we have said with respect to its therapeutical management, adding only, that, in prevalent epidemics, we employed at once *Bellad.* 3, when the cough began to appear with accumulative shocks and the children became at the same time red in the face; and that we recurred to *Dros.* 3, when the cough was besides so severe as to induce inclination to vomit or actually produced vomiting; both of these remedies in solution every hour or two. The result was usually favorable; for generally we saw afterwards the whooping cough developing itself in its mildest form, or terminated in the shortest of time altogether. This is all we have to say about *Drosera*; in the convulsive stage we have never derived the slightest benefit from this drug.

By an exact observation of all the essential points mentioned in the chapter on Bronchitis, as regards inflammation, expectoration, the mode of coughing, subjective symptoms and intervening complications, we succeed mostly to render the catarrh so mild, as to reduce it to its minimum. When then—which is in prevalent epidemics unavoidable—the convulsive stage enters, it will, in consequence of the already reduced catarrh, be of a very amenable character too, so that we see, not seldom, consequent upon a rational treatment, the whole process of the whooping cough terminate in 25 to 30 days, whereas the same lasted, under other methods, 4, 5, 6 months. Not every cough however which occurs, during a whooping cough epidemic is to be regarded as a whooping cough. Even cough of a spasmodic character ought

not to be proclaimed as a whooping cough, as long as those above-described coughing-shocks, attended by their peculiar convulsive inspirations and by all those other characteristic symptoms, are wanting. There is many a case recorded in homœopathic literature in which the whooping cough as such is not sufficiently to be made out.

According to our own conviction, there has been, by practitioners, pursued a mode of selecting remedies in the convulsive stage, which is not the correct one. We find for certain remedies pretended indications and are told that such and such a symptom absolutely points to such and such a remedy; by a strict examination however we have come to the conviction that those pretended guiding symptoms lack, with regard to whooping cough, the necessary characteristic, the distinguishing differentiation.

Thus for example we have been told that *Arnica* is the remedy when the whooping cough begins after crying. But we know, that the most fits occur as well after or through crying, as through laughing, running, crying aloud, through smoke, cold drinking, etc., in general through any and every agent capable of producing a constant irritation in the trachea or bronchi, or in the larynx. *Tart. Emet*, we have heard to be indicated, when the children yawn much before the fit, or when they, after the cough is over, cannot catch their breath; but we know that the act of yawning is often a precursor of convulsive fits, and that it has no other signification than anxiety and restlessness which often befall the children before the whooping cough fit. We know further that children, after *any* severe and long-lasting whooping cough fit cannot easily catch their breath: these symptoms are ther wanting in the essential charcteristic. Of *lactuca virosa* we find recorded:—when the paroxysm is preceded by anguish, *Lact.* is indispensable; but we know that in *any* paroxysm not occurring suddenly but preceded by some precursory symptoms, anguish and anxiety will play the principal rôle. "Magnesia Muriat cures when, in the convulsive stage, the appetite is wanting, the tongue being clean." But we know, that in every fit ending with vomiting the children will feel very exhausted, and will, with a clean tongue, refuse food as long as they have not completely recovered.

These examples, of which we could give many more, sufficiently show that the mode of selecting the right remedy, is quite false. It is especially this mode which is the cause of certain remedies being praised as particularly efficacious in one epidemic, while they prove to be, under the very same indications, quite without avail in other epidemics; simply because those indications which have to determine the application of the remedy, have been based on a too vacillating and therefore a less characteristical ground. Even subjective symptoms have been put before us as selecting guides; every experienced practitioner however knows, how little value he ought reasonably to attach to statements made by children with regard to their subjective feelings.

The unreliability and insufficiency of that mode have caused us for many years to look out for another one, less elastic and vacillating in its indications, and we present to our readers all we have to say about this subject, after a serious investigation and a long and careful experience.

The fits of whooping cough present themselves under three different forms, namely under the form of *cerebral hyperæmia*, or under the form of a capillary blood stagnation, manifesting itself as *cyanosis*, and ultimately under the form of *collapsus* and *anæmia*.

If the children become dark-red, and swollen, in their face, during the fits; if this dark-redness continue for sometime after the fit is over; if the children complain of head-ache, or if they, when too young to utter their sufferings, hide their head exhausted on the shoulders or the arms of the mother or nurse, not being able to keep it erect; if the head be hot, the thirst increased, the conjunctiva injected even after the fit is over; if there be pulsation of the carotids and an accelerated pulse; if the children are morose, much inclined to cry or to sleep, if there be a steady restlessness about them—then we may conclude with surety that there is a continual state of cerebral hyperæmia, in which case our selection will fall upon one of the following remedies: *Bellad* 3. *Opium* 3. *Veratr.* 3. *Conium.* 3. and *Merc. sol. Hahnem.* 3.

We prescribe *Bellad*, under the above mentioned phenomena, when the children are drowsy, when they murmur during sleep, or when they are very restless, morose, and can by no means be

quieted; or when they reveal signs of photophobia, get frightened by the least noise, when they are so extremely sensitive, that speaking to them makes them cry; when they, after a violent fit, bleed from the nose. In such a case we give 2—4—6 drops of *Bellad.* 3 into half a quart of water, and order that 1—2 tea spoonfuls may be taken every hour or two. Should there be within 2—3 days no amelioration, we prescribe *Atrop. sulph* 3, to be administered in the same way. Often we see under the use of these remedies, the fits diminish in their intensity as well as in their frequency in the shortest time, that is within 4—5 days, and we are then able, by the continual use of these remedies, to cut off the whole disease.

Opium 3. we give, in the same way as *Bellad.*, when, with prominent symptoms of cerebral hyperæmia, the children become confused after the fit, or become even soporose (denoting a considerable pressure upon the brain) and when they snore during sleep, with the lower jaw hanging down.

N. Vom. 3 and *Veratr.* 3—in the same way in solution—is prescribed when after the fit, in consequence of pressure on the brain, there is inclination to, or actual, vomiting; we prefer the first mentioned remedy, when there is at the same time nervous erethism, manifesting itself by angry behaviour, or when there is meteorism with constipation; while we administer *veratr.* when spasmus glothidis is prevalent and the intestinal secretions are increased.

Cupr. Ac. 3, if possible in solution, every 3—4 hours, is an excellent remedy, when, with the symptoms of cerebral hyperæmia during the fits attended with violent spasms of the glottis, there is convulsive contortion of the limbs and after the fit morbid contractions of the *flexors*, especially of the fingers and toes. Whereas—

Cina 3—also in solution—is required, when, during and after the fits, considerable contractions of the *extensors* manifest themselves, producing stiffness in some parts of the body with pains in the thus contracted muscles.

Led. Palust. 3 may be employed under cerebral hypersemic symptoms, when the children stagger after the fit, as if intoxicated; when there is much sighing during their sleep and when, after the fit, the diaphragm still contracts convulsively, so that

the inspiration, similar to an inspiration after crying, is double and sobbing.

Arnica 3 has been found indicated, when with a hot head the rest of the body is cold, and there is at the same time bleeding of the nose, in which case *Bryon.* 3 might also be of use.

Conium 3. when with signs of cerebral hyperæmia the fits come on disproportionately more frequent during the night time, the children cry much after every fit and cannot be quieted.

Under the same phenomena *Merc. sol. Hahn.* 3. may be employed, especially for frequent night sweats, green, painful diarrhœaic stools, or bleeding from the nose, the blood being easily coagulable.

Coral. rubr. deserves undoubtedly a place amongst the remedies indicated in the hyperæmic form of whooping cough, especially when the hyperæmia is so intense as to threaten to degenerate into meningitis. We had till present no occasion to convince ourselves of its effects.

In this series of remedies *bellad* and *atrop* are the first, next to them is *opium*, then come *nux. v.* and *veratr*, then *cupr. ac. cina* and *conium*. The other remedies mentioned are, in this form of whooping cough, less reliable.

In connection with all these above mentioned remedies, we apply cold water, or in dangerous cases ice, upon the head, take care to keep the surroundings of the patient as quiet as possible, and restrict him to an antiphlogistic regimen.

As soon as the coughing-fits and with them the signs of hyperæmia diminish, we administer the remedies seldomer, so that we allow them at last to be taken only as often as there be coughing-fits. According to our experience it is advantageous to administer the remedy always after the fit is over.

If the whooping cough, on the contrary, appear with the signs of cyanosis, which, according to our experience, is especially then the case, when the finest ramifications of the bronchi are catarrhally affected, a circumstance which can only be elicited by a careful auscultation, and if the cyanotic phenomena continue to last for some time even after the fit is over, our choice falls upon *Ipecac.* 3. *Tart. Em.* 3. *Verat.* 3. *Carbo veg.* 6. and *Laches.* 6.

(To be Continued.)

CLINICAL RECORD.

A Case of Puerperal Tetanus,

UNDER CARE OF M. L. SIRCAR.

History.

Babu P. C. Banerjea's wife, aged about 34, was delivered of a male child on the 26th February 1869. This was her 8th child and the labor was natural and easy. The confinement was, as usual in a native house, in a low, damp, ill-ventilated room. On the 28th instant, she had an attack of slight fever from which she was quite free by the 3d of the next month, March. On the 7th March, the 10th day of confinement, she bathed for the first time after delivery. On that very day she felt slight stiffness of the jaws, but this was slighted, and thought of as nothing but slight cold. On the 8th the lockjaw was distinct but still disregarded. On the 9th the lockjaw considerably increased. In the morning difficulty was experienced in swallowing solids, but by evening there was difficulty and pain in swallowing liquids as well.

Progress and Treatment.

10th. March.—I was sent for, and of course there could be no mistake as to what the case was; it was a case of tetanus, and not of simple cold as the patient and her husband had thought. The patient was in the habit of taking opium daily, (a habit which she had contracted for a chronic diarrhœa which she had suffered from long) and the husband had strong prejudices against homœopathy. I therefore ordered—

Liq. Opii. Sedat. ♏viii. every 3 hours.

11th.—The opium, having procured some relief, enabling her to swallow better and giving her snatches of sleep, was continued.

12th. Extension of the disease. The neck became involved for the first time. As yet the spasm was of the tonic character.

℞ Tinct. Cannabis Ind. ♏v. every 3 hours.

℞ Chloroform ʒii.

Lint. Sapon ʒii. Ft. Lt. Rub the affected parts with. Chloroform inhalations.

13th.—The tonic spasm invaded the muscles of the back. Same treatment continued: and the opium which was discontinued was resumed in addition. The patient having become weaker, broth was ordered.

14th.—Clonic spasms commenced to-day, convulsing at times the whole body, but more especially the neck. Thirst very great. Patient

very weak. Brandy ordered to be given as frequently as she could take, in addition to hemp and opium.

In the afternoon the violence of the clonic spasms increasing, we gave *Nux V.* 6 internally and *Nux V.* 8 to inhale. The inhalation had the effect of diminishing the severity of the fits, and even of enabling her to open her mouth better so as to take in medicine and nourishment more easily than she could before.

The following liniment also did great service in keeping down the tonic spasms :—

℞ ℥ ss. Mellis ʒii.
Spt. Vin. Rect ℥ i.
Chloroform ʒiv M. Ft. Lt.

15th.—The convulsions very severe, abdomen distended, breathing difficult, spasms in the stomach. All previous medicines were stopped and Nux Vom 100 was ordered to be given in steel.

Very bad in the evening, distension of the abdomen. No stool since the commencement of the attack. An enema of castor-oil and turpentine was therefore ordered, but it brought away nothing, in fact nearly the whole of the liquid thrown in remained in the bowel.

In the middle of the night the fits became very frequent and severe. Groans and unintelligible speech. Pulse almost imperceptible. Body cold. This state was gradually recovered from, without any thing being done.

16th.—The patient continuing very bad, a Kaviraj was called in who ordered *Makaradhwaja* (a compound of gold, mercury, and sulphur) internally, and old *ghee* (clarified butter) to be rubbed over the body, and heat applied to it from the flame of palm leaves burning close by.

This day she had a stool at 2 P M, whether the result of the Kaviraj's medicine, or the effect of the previous day's enema which was retained, it is impossible to say. However the patient felt much better to-day. The fits were fewer and rather less severe.

17th.—The patient was well till 2 P M., after which fits returned in a much more severe form. There was this peculiarity in the fits, that the right and left sides of the body were alternately convulsed and free from tetanic spasms. During the fits fœtid saliva spirted out of the mouth with force. During the intervals between the fits the countenance became much sunken, the eyes vacant, the voice plaintive and hoarse.

I was sent for again in the afternoon, and remembering the case of the criminal upon whom Mathiolus had experimented, which seems

to point to alternate affection of the sides of the body by the drug, though the particular affection developed in that case was *paralysis*, I prescribed Acon. 6. This did not seem to do any good. Fits of violent convulsions continued the whole night.

18th.—The peculiarity observed yesterday of the sides of the body being alternately convulsed had disappeared, probably the result of the Acon., but the whole body became rigid and was being violently convulsed so that there was impending danger of death by suffocation.

A dose (5 drops) of tincture of *Tabacum* was put into the mouth at 11 A. M., but without the slightest effect upon the spasms. On the other hand, it had a depressing influence upon the pulse and the abdomen becoming very tympanitic, the medicine was not repeated. In the evening the fits became so violent and the pulse so lowered that all hope was given up of her recovery. The following mixture was ordered:—Liq. Strychniæ (B. P.) ɱxv. Chloroform ʒi. Aq. Dest. ℥i. ʒiii. M. Ft. Mist. One Drachm for a dose. Only one dose was given but the symptoms getting aggravated, Dr. Chapman's ice-bag was applied over the spine. This had the remarkable effect of at once quieting the spasms for sometime, and the night was passed in comparative ease, though fits and violent ones too did return. After the application of the ice-bag the temperature of the chest became very high, it felt hot to the hands.

19th.—The ice-bag ceased to have any effect. The fits became again violent and frequent. Difficulty of breathing was very great. Tympanitis continued. Chloroform and brandy were tried but without effect. In the afternoon we found the patient very bad and we thought of counteracting all the medicines she had taken. We therefore administered camphor and with remarkable benefit. The fits became less frequent and less violent, the tympanitis diminished, dyspnœa became less.

20th. Same as on the previous day after camphor. Thirst continued.

21st.—Fits less in number but longer in duration than they were before. Body cold at intervals.

22nd.—Passed a very bad day. She had nearly died in the night. Whole body was cold as ice; hardly any pulse. *Ars.* 6. revived her.

23rd.—Decided improvement. Had one good stool. No medicine. Broth was again ordered.

24th.—Same as on the previous day. No medicine, except *Ars.* and *Carbo V.* when collapse was threatened.

25th.—Fits became longer in duration. Same treatment continued.

26th.—Duration of fits became very long, as long sometimes as 2½ hours. The opisthotonos was at times so great that the body was curved like a bow. *Hyoscymus* (mother tinct.) was ordered in doses of 5 drops every 2 hours. This had the effect of at once quieting the spasms, and from this day the tetanic symptoms steadily diminished till there was no vestige of it except some rigidity of the body by the 30th. It is worthy of remark that the chloroform liniment having ceased to do any good, a lotion consisting of sulphuric ether and rose water was used, and with considerable benefit.

1st April.—While we were congratulating ourselves on the improvement already effected, a new and a most troublesome symptom set in,—grinding of the teeth. The noise made was so loud as to be audible from down-stairs. And sometimes the jaws were so strongly pressed against each other that we were afraid they would be smashed to pieces. Fortunately we found in *Stramonium* an agent more potent than the disease. We first prescribed the 6th and we had to descend to the 3rd to complete the cure in about 4 days.

On the 5th the patient was well enough to take rice.

Remarks.

This was one of the most remarkable cases that we have had during the whole course of our ten years' practice. It points to a most common cause of tetanus in the puerperal state, namely, confinement in a low, damp, ill-ventilated place. To some extent it seems to favor the prevalent idea of the 8th pregnancies being attended with more or less danger. It most emphatically demonstrated the power of medicines, especially homœopathically selected medicines, over disease. It demonstrated likewise the utility of Dr. Chapman's ice-bag to the spine, and it proved as well the folly of continuing its application when it ceases to do good. There is a time for every thing, during which alone it acts beneficially, and beyond which cannot fail to be injurious.

A Case of Incipient Hysteria,

UNDER CARE OF M. L. SIRCAR.

I was called on the 17th instant, to see a girl of about 15 who, while dining, felt a constriction in the throat which prevented her eating. Immediately she was seized with a tendency to weep and she

did weep often. She then lost all power of speech and informed us by writing that she felt as if something in the throat was preventing her from giving utterances to her thoughts and feelings. There was very great oppression and tightness of the chest, and a crampy pain in the stomach. She could not trace her ailment to any particular cause. All that she could say was that she had disturbed sleep in the night and that since that she was not feeling all right in her head, which was rather heavy. On inquiry we learnt that since her first menstruation, the course had been irregular and rather scanty and not having the natural color. We gave her *Puls.* 6 to inhale and immediately she felt the constriction in the throat removed. In a few minutes more the tightness and oppression of the chest were considerably relieved. She felt as if she could speak, made several attempts, succeeded in only uttering simple sounds, but could not utter articulate speech. We therefore gave the medicine internally as she could now swallow. In the course of an hour she was all right again.

A Case of Pyœmia.

UNDER CARE OF BHOOBUN MOHUN CHATTERJEE, L. M. S., BURDWAN.

C. B. R., aged 64, a very fat and relaxed woman of phlegmatic temperament, was subject to chronic bronchitis from the early part of her life. The bronchitis brought on in due course pulmonary emphysema. Hence she was habitually short-breathed; any, the slightest amount of physical exertion increased the dyspnœa and induced palpitation of the heart. About 15 years before she had a large carbuncle on her left natis which opened of itself, sloughed and left a sinus in the part affected; the sinus continued to discharge a thin ichorous matter for two successive years after which time it closed from mechanical pressure of a piece of sheet lead contrived for the purpose and tightly held in situ by means of bandage. 2 years afterwards another carbuncle formed close to the former one; it was somewhat smaller in size. A medical man opened it and treated it precisely on the former method. The sinus healed after one year's treatment. About 3 years ago she had another carbuncle near the first cicatrix for which she was placed under my care; I made a deep crucial incision carrying the incision a little beyond the diseased part to the sound skin in all directions. The wound was dressed with caustic lotion and poulticed and was cured within a week. On the 22nd Nov. last having had a severe attack of bronchitis attended with great difficulty of breathing she placed herself under

my care and as soon as she became convalescent she noticed a very large patch of surface near the first cicatrix swollen, painful and red; this alarmed her and I was sent for on the 2nd December; on examination I found the whole patch doughy and œdematous, a deep crucial incision was made in the part extending it in all directions to the sound skin and a large quantity of thin sanious and fœtid pus let out. On looking into the wound a large cool black slough was discovered and I had some difficulty in removing it as the attachments were very deep. The wound was injected with solution of permanganate of potass and dressed with carbolic acid and poulticed. The patient was ordered to take the following.—

℞ Quinæ Disulph. gr. ½
Acid. Nitromuriat. Dil ♏v.
Tinct. Cinchonæ co. ʒss
Infus. Calumbæ. ʒi three times a day

Port wine ʒiv. thrice daily. Diet—kid-soup, rice, *loochee*, *Mohon bhog*, &c. Under this plan of treatment she began to improve very rapidly and the sore looked healthy and granulating. During the progress of the case without any apparent cause and all on a sudden she had strong rigor followed by copious perspiration on the evening of the 10th. Her appetite was greatly diminished and with the loathing of food there was frequent vomiting and purging; these prostrated her very much, she complained of difficulty of breathing, and her pulse was 120, soft and feeble.

Ordered. Soda sulphite ℈i every 4 hours. Food and port wine continued. Omit Mist Quinæ.

11th. The Diarrhœa increased, anorexia and debility as before; add tinct opii ♏x and aqua pura ʒi to the above and cont. all.

12th. Darrhœa better; some inclination to take food, no return of rigor or perspiration; cont. all.

13th. Had a slight rigor last night followed by perspiration; diarrhœa much improved; sore healing rapidly, new skin forming all round it; cont. all.

14th. Had nothing to complain of; appetite food, spirits cheerful; almost half the ulcer covered with newly formed skin; cont. all.

15th. 7 A. M. Doing very nicely; cont. all.

9½ A. M. All on a sudden strong rigor followed by copious perspiration. The rigor and perspiration had come on twice before I called in at 12 noon. The patient was very restless, purging frequent, watery and copious, sweating profuse, vomiting, depression of spirits, surface and conjunctiva distinctly jaundiced; cough; hurried breathing; incoherency of speech; pulse very feeble and frequent; ulcer

swollen; the whole natis red, hot, swollen, œdematous—omit all above, ordered—

℞ Spt Vini Gallici ʒss
Spt Ammon Aromat ʒss
Aqua Puræ ʒi

Ft Haust every ½ hour, sinapism to the chest.

2 P. M. Purging inordinate, pulse extinct at the wrist, subsultus tendinum, profuse sweating—delirium rather wild. Add chlorodyne ♏v. to the above and cont.

5 P. M. Purging and vomiting stopped, somewhat sensible, says she feels much better—pulse a little perceptible, but breathing more labored and extremities colder than before. Omit above.

℞ Spt. Ammon. Aromat. ʒss
Spt. Æther. Sulph. ʒss
Mist. Camph. ʒi. Ft. Haust. Every hour.

7 P. M. Coma, breathing labored and difficult—pulse extinct again, great restlessness, extremities colder still, perspiration profuse, patient continued in this state till 11 P. M. when she breathed her last.

This case furnishes some points of remarkable interest which are worth noticing. Ordinarily cases of Pyæmia are met with among overcrowded and ill-ventilated houses such as barracks, hospitals and bazars where the chances of blood contamination are very great. Healthy conditions of the system are scarcely affected by it. But here is a case in which there was a total absence of these predisposing circumstances; the patient was a woman in high life belonging to one of the first families in the country. She lived in a palace-like house where no manner of dirt or filth could find place and where the rooms were as airy and well ventilated as rooms can under any circumstances be; she could command the best kind of diet that was requisite and was never to my knowledge intemperate in her habits and living; an ulcer she had, but that was in a pretty healthy condition and there were distinct evidences of granulation and cicatrization, though unsoundness of the sore is stated to be one of the essential conditions of pyæmia.

Dr. Polli of Milan speaks very highly of the efficacy of the sulphites in pyæmic cases; they were tried in this case but had no effect whatever. The patient seemed to rally for a while; there was an apparent amendment but that was a delusion after all, and she soon passed into a state of insensibility from which she never recovered.

Cases under Baboo C. N. B.,

1.—*A remarkable case of Worms.*

Mahendra Das, a boy about 9 years old, was admitted into the Dispensary as an out-door patient on the 14th January 1869. The mother of the boy stated that he was suffering for the last few months from fever which comes on at irregular times during the day with shivering; that she had tried in vain all sorts of native medicines, and that she was at last advised by her neighbours to take her son into the dispensary.

Symptoms on admission: The boy was emaciated; his extremities were thin and attenuated, eyes sunken, countenance pale, abdomen large, superficial veins of the abdomen distended. There was no organic lesion of any important viscera. He complained of gnawing pain in the epigastrium and had occasional vomiting and constant fever.

I suspected worms and asked the mother if the boy had ever passed any since he was sick; but she answerd in the negative.

The symptoms mentioned above were exactly similar to those in a case I had in my out practice treated with success; I administered in the present one santonine gr. iii, with soda carb. gr. viii, at bed-time and Infus. calumba ʒii, with liqr. am. acet ʒi, thrice during the day and the result was this:—On the next day the boy passed one worm. The mixture and powder having been repeated the mother on the 3rd day produced to my great astonishment a panful of worms passed by her son in one motion in the morning. The worms counted before me were *three hundred and five* in number, and they measured from five to seven inches. They were of a silvery white lustre without any trace of fæcal matter with them. This led me to suppose that they had been washed, but on inquiry I was satisfied that they were brought just in the same state and even in the same vessel in which they had been passed by the patient. On the 4th day he again passed two worms. This day the abdomen was at once diminished; the fever gradually diminished and the boy looked cheerful. Tonics and stimulants were administered for a fortnight and the boy rapidly recovered and left the hospital.

2.—*A case of retained menses from occlusion of the vagina.*

Matangini, a girl about 14 years old, was admitted into the hospital as an in-door patient on the 31st August 1867. The mother-in-law stated that she had never menstruated, that about a year ago she had diarrhœa and pain in the uterine region and since that time she could not pass urine freely.

Symptoms on admission: Abdomen swollen; body emaciated; a good deal of general debility; breasts developed; strains a good deal in passing urine A hard tumour about the size of a fœtal head above the pubes which was tender and painful on pressure. Extreme agony so much so that she cried out often "I will die if I be not immediately relieved from the pain."

On examination, it was found that the external organs of generation were well-formed, but the orifice of the vaginal canal occluded by a white elastic thick membrane bulging out, which being pushed with the finger appeared to lead into a hollow space; by introducing the finger into the rectum a large fluctuating tumour was detected at the upper part of the pelvis.

Having drawn the urine by a catheter I pierced the membrane with an exploring needle, and on its withdrawal the groove was found full of dark grumous blood. I passed a large sized trocar along the track and on its withdrawal a large quantity of fluid which was very fœtid escaped through the canula slowly. She felt herself very comfortable when the fluid was escaping and was pressing the uterine region. She had sound sleep that very night. On weighing the fluid afterwards it was found to be about a *seer* (2 lbs.) and the pubic region appeared soft and pliable. The next morning I made an incision (without chloroform) as I could not have operated the previous day for the constant oozing out of the dark treacle like bloody fluid and in the absence of a small sized speculum I was satisfied to find that my finger passed along the track, and touched the cervix uteri The vagina was syringed with tepid water, a round pledget of lint with oil was introduced and Tinct opii ℥x in an ounce of camphor mixture was given internally. The plan of treatment adopted in the case was tepid water injection, sola dilator, mild laxatives, tonics with stimulants, and anodynes occasionally. On the 19th Sept. the patient left the hospital, when the vagina was dilated so as to admit two fingers. I was very glad to learn subsequently that she had improved in health and had menses regularly.

Gleanings from Contemporary Literature.

AN INVESTIGATION INTO SOME PREVIOUSLY UNDESCRIBED TETANIC SYMPTOMS PRODUCED BY ATROPIA IN COLD-BLOODED ANIMALS; WITH A COMPARISON OF THE PARALYTIC AND CONVULSANT SYMPTOMS PRODUCED BY ATROPIA IN FROGS AND IN VARIOUS MAMMALS;

BY THOMAS R. FRASER, M. D., F. R. S. E.,

Assistant to the Professor of Materia Medica in the University of Edinburgh.

(Abstract of a Paper communicated to the Royal Society of Edinburgh, 21st December, 1868.)

AUTHORITIES on the action of medicinal substances agree in including convulsions among the effects on man of belladonna and of its active principle, atropia. Similar effects are described as occurring when large doses of this substance are administered to dogs, rabbits, and other mammals, and to various birds. The recent progress in our knowledge of the exact and intimate physiological action of many medicinal substances is greatly due to investigations that have been made on animals of a lower type of organization, and, accordingly, numerous observers have instituted experiments on such animals, and, especially, on frogs. Hitherto, however, convulsions and tetanus have not been described among the effects of atropia in cold-blooded animals. *(a)*

While making a series of experiments, in April 1868, to determine the minimum fatal dose of atropia for frogs, I was somewhat surprised to find that increased reflex excitability, convulsions and tetanus occurred, occasionally, at a certain stage in the poisoning. Believing that a careful examination of these symptoms might probably serve to throw some light on the causation of several of the complicated effects of a substance that has long occupied an important position as a therapeutic agent, I have made a number of experiments to determine, accurately, the characters of these convulsive effects; to ascertain the dose necessary for their production; to differentiate, as far as possible, the structures on whose affection they depend; and to harmonize these symptoms with analogous effects in warm-blooded animals, and explain their appearance in special circumstances only, in both frogs and mammals. This investigation is limited to these objects; only those effects of atropia that are directly connected with the convulsive symptoms will, therefore, be considered.

(a) Since this was written, I have communicated with Dr. John Harley of London (the author of several important papers on the physiological action and therapeutical employment of belladonna), and have had the pleasure of learning that he also has observed tetanus and other symptoms of abnormal reflex activity in frogs, during protracted atropia-poisoning.

Soon after a small fatal dose, or one rather less than fatal, of a salt of atropia is administered to a frog, a slight degree of weakness occurs in the anterior extremities; the respiratory movements of the chest cease, those of the throat continuing; and the motor power becomes gradually more and more impaired, until, at length, no voluntary nor respiratory movements occur, and the animal lies on the abdomen and chest in a perfectly flaccid state. If the condition of the heart be now examined, it will be observed that the cardiac impulse is scarcely perceptible, and that the contractions are reduced to a very few in the minute. At this time, the application of various stimuli shows that the functions of the afferent and efferent nerves are retained, though in a greatly impaired condition.

Several hours afterwards, it may be not until the following day, the action of the poison is still further advanced; for the afferent and efferent nerves are completely paralysed, while but an occasional and scarcely perceptible cardiac impulse can be discovered: the only signs of vitality being this imperfect cardiac action and the retained irritability of the striped muscles. This condition may last for many hours or for several days. Previous observers have apparently mistaken it for one of death, and have, therefore, failed to observe the symptoms that subsequently appear, and to which, more particularly, I wish to draw attention.

The first of these symptoms is usually caused by a change that occurs in the flaccid condition of the animal; the anterior extremities becoming flexed, and, gradually, more and more arched until they assume a state of rigid and continuous contraction, with the webs pressed either against each other or against the opposite elbows—tonic spasm of the chest-muscles assisting to retain the anterior extremities in this position. At this time, a touch of any portion of the skin increases the spasm of the anterior extremities and of the chest-muscles, and causes some slight spasmodic movements in the posterior extremities. After varying intervals, the respiratory movements reapear, the cardiac action improves greatly in strength and in frequency, and the posterior extremities assume an extended position with the webs more or less stretched. If the skin be now touched, a violent attack of tetanus occurs (usually opisthotonic, at this time), which may last for from two to fifteen seconds, and is succeeded by a series of clonic spasms. During the first attacks of tetanus, the posterior extremities are often more or less abducted; and immediately after each attack they become flaccid, but the anterior extremities almost always remain rigidly flexed.

At a somewhat later period, tetanus of a still more violent character and of longer duration may be excited, and the attacks are now almost invariably emprosthotonic. During them the posterior extremities are rigidly extended, while at their conclusion not only do the anterior extremities remain rigidly arched, but the head continues bent downwards by tonic spasm of the muscles of the abdomen, chest and neck.

A series of such attacks may be produced by repeated touches of the skin; but after a number have been excited in quick succession, the subsequent convulsions become shorter and rather less violent, though they re-acquire all their former violence after a period of rest.

During the convulsive stage, and especially at its latter portion, the animal may execute various movements; but from the difficulty with which these are performed, even when they do not themselves excite spasms and tetanus, it is apparent that the power of voluntary movement is still considerably impaired.

The period during which this tetanic state remains was found to vary greatly in different experiments, and, as might have been anticipated, the larger within certain limits the dose of atropia administered the longer the continuance of this condition. It has been observed to continue in some experiments for only a few hours, in others for several days, and in one experiment for so long as seventeen days.

The following experiment illustrates the usual characters and duration of the symptoms with such a dose of atropia as produces convulsions.

A solution of 0·4 grain of sulphate of atropia in four minims of distilled water was injected under the skin at the left flank of a frog, weighing three hundred and eighty-six grains. As usual after such a dose, in the course of an hour, the frog was flaccid and unable to perform any voluntary movement.

On the following day—eighteen hours after the administration—the frog was lying motionless on the abdomen and chest. It was ascertained by galvanic stimulation, that the conductivity of the sciatic nerves was suspended, while the contractility of the muscles was apparently unaffected. At twenty-two hours after the administration, however, a weak stimulus produced feeble reflex movements. The heart's impulse was now barely perceptible, and contractions occurred but eight times in the minute.

On the third day—fifty hours after the administration—the frog was still lying on the abdomen, but the chest and head were slightly raised by flexion of the anterior extremities. The reflex function was in a more active state, for a slight stimulus applied to the skin of the head caused an increase in the flexion of the anterior extremities—by which the head was still further raised—and a sudden extreme abduction of the two posterior extremities. Irregular respiratory movements of the throat were now observed.

On the fourth day—sixty-three hours after the administration—a faint touch of the skin of the head was followed by an attack of opisthotonic tetanus, lasting for four seconds; during which the anterior extremities were rigidly arched, while the posterior were extended backwards in a straight line. When the stimulus was applied to any other region, the only effect was an increase in the tonic spasm of the anterior extremities, and a sudden and somewhat spasmodic flexion of the posterior.

On the fifth day—ninety-five hours after the administration—the frog was lying on the back with the anterior extremities rigidly flexed and having the webs pressed against each other, and with the posterior extremities stiffly extended. A slight touch of the skin of any region was immediately followed by a sudden and violent attack of emprosthotonic tetanus. These convulsions were general for about ten seconds, but the tetanus continued

for several seconds longer in the anterior extremities than elsewhere. The respiratory movements had now become more frequent and regular.

During the two following days the frog remained in this condition.

On the eighth day—one hundred and sixty-four hours after the administration—it was more difficult to excite general tetanus; somewhat irregular convulsions occurring, most frequently. When the skin of an ankle was touched, tetanus occurred in that limb and in the two anterior extremities, and continued for five seconds; but merely spasms, without extension, occurred in the opposite posterior extremity. General tetanus could be excited only when the irritation was applied to the head. The cardiac impulse had now greatly improved in character, while the rate of the contractions had increased to twenty-two beats in the minute.

After this, a daily improvement was apparent. On the twelfth day, the frog had resumed a normal sitting posture, the anterior extremities being, however, still slightly arched; and on the sixteenth day the tonic spasm of the chest muscles and of the anterior extremities had completely disappeared: but during all this time it was possible to excite a short attack of general tetanus, though severe or frequently repeated stimulation had to be employed.

On the seventeenth day—three hundred and eighty-two hours after the administration—stimulation, even when severe, excited mere stiff reflex movements of the posterior extremities, and comparatively slight and short tetanus of the anterior.

The complete disappearance of the exaggerated activity of the reflex function was but slowly effected, and did not occur until the twenty-fourth day after the administration. For several days after this, the frog was in a somewhat torpid state, moving about very sluggishly and obviously preferring to remain quiet; but, ultimately, it recovered perfectly.

In several of the experiments, the functions of the cerebro-spinal nervous system were not observed to be completely suspended in the stage of the poisoning antecedent to the appearance of tetanus. Only impairment of these functions was observed, but as the state of flaccidity often lasts for several days, it is obviously impossible to make observations so continuously during this period as to authorize the assertion that total suspension did not occur. There is, at the same time, no reason for supposing that complete paralysis is a necessary antecedent to tetanus.

It is almost superfluous to allude to the resemblance in frogs between the tetanic symptoms of atropia and those of strychnia. There are, however, certain peculiarities connected with the tetanus which atropia causes, apart from the remarkable circumstance of this tetanus being preceded by more or less complete paralysis. After poisoning by atropia, the symptoms of exaggerated reflex excitability are, as has been shown, extremely slight on their first appearance, and they acquire their greatest violence only after a considerable time. When the motor-stimulant effects have become fully developed, the state of the animal is one of nearly constant spasm—this tonic spasm being rarely general but almost always restricted to certain

regions—so that the attacks of tetanus are rather of the nature of exacerbations of existing spasm than of successive and independent convulsions. Strychnia tetanus, on the other hand, becomes fully developed with great rapidity; and during the stage of remission the animal is usually in a perfectly flaccid state. Further, in atropia-poisoning, the attacks of tetanus can seldom be excited by the very slight stimuli that are sufficient to do so in strychnia-poisoning.

A large number of experiments have been made with both the sulphate and acetate of atropia, and it was found that nearly the same doses of both salts were required to produce these remarkable convulsive phenomena. Tetanus, or at least a state of greatly exaggerated reflex activity, may be looked for with considerable confidence when a dose equivalent to about the 1-1000th of the weight of the frog is administered by injection either under the skin or into the abdominal cavity. It is also pretty constantly produced by doses somewhat greater or less than the above; indeed, in the experiments that were made, it was produced by the majority of the doses included between the 1-735th and the 1-1250th of the frog's weight. The larger doses usually cause the most violent tetanus, and they may be given to very small frogs, and to those that have been kept in a laboratory for several months. The smaller doses seem best adapted for large frogs, and for those that have been recently obtained from their natural *habitats*. It is of some importance to dissolve the atropia-salt in only a few minims of water: from four to eight is quite a sufficient quantity.

It is by no means an easy matter to ascertain what structures are concerned in the production of these convulsant effects, for the protracted intervals that often elapse between the administration of the poison and the appearance of tetanus, and the differences in the severity of the tetanic symptoms that follow even the most carefully calculated doses, frequently necessitate a patient repetition of the experiments. In the first series of experiments, the blood-vessels of one or of both posterior extremities were tied before atropia was given, and, by frequently modifying the dose, tetanus was on several occasions produced sufficiently soon to give results that were not materially influenced by the previous ligature of the blood-vessels. The following experiment shows the nature of the evidence that was thus obtained.

The left sciatic artery and veins were ligatured in a frog, weighing two-hundred-and-eleven grains, and, immediately afterwards, a solution of 0·2 grain of sulphate of atropia in four minims of distilled water was injected under the skin of the right flank.

On the second day, general tetanic convulsions could be readily excited by touching the skin in any region; *and both posterior extremities—poisoned as well as non-poisoned—were equally involved in these convulsions.*

On the third day, the left (non-poisoned) posterior extremity was somewhat rigid and took no part in the convulsions.

In this experiment, as well as in many others of a similar kind, tetanus occurred in the limb to which the access of the poison had been prevented.

It was thus demonstrated that the tetanus does not depend on an action on motor or sensory nerves nor on muscles; and it is, therefore, apparent that it must depend on an action on the central nerve-organs.

The predominance of cerebral symptoms during atropia-poisoning, in animals of a higher developement, suggested the possibility of these tetanic symptoms being caused in frogs by an influence originating in the cerebral lobes, or, more probably, in the ganglia at the summit of the medulla. Accordingly, on several occasions, the spinal cord of a frog in the stage of tetanus was divided immediately below the brachial enlargement. After this operation, however, the tetanic condition of both the anterior and posterior segments remained. Violent tetanus could be readily excited in either segment; and this condition sometimes lasted for several days.

The most satisfactory evidence has, therefore, been obtained to prove that these tetanic symptoms are caused by an action of atropia on the spinal cord.

An attempt will now be made to show that the paralytic and tetanic symptoms that have been described in frogs are represented among the symptoms of atropia-poisoning in rabbits, dogs, and other mammals; and that, in both cases, the special characters of these symptoms, as well as the peculiarities of their occurrence, are the results of exactly the same actions.

There can be little doubt that in many cases the convulsions that appear during poisoning by atropia in man, dogs, rabbits, and other mammals, are partly due to asphyxia, caused by impairment of the functions of the cerebro-spinal nervous system. Frequently however, they are chiefly due to a special and primary stimulant action of atropia on the spinal cord and medulla oblongata. The latter method of production has been recognised by observers who were fully alive to the possibility of such symptoms being caused by asphyxia alone.* Several experiments on dogs have satisfied me that this is the case; for after the administration of doses that were about the minimum fatal, I have, on several occasions, observed a condition of partial paralysis and exaggerated reflex activity continue for longer than twenty-four hours, while during a considerable portion of this time the respirations were of fair character.

The remarkable position which the convulsive symptoms occupy in frogs —occurring subsequently to either a partial and short or a complete and protracted paralysis of the cerebro-spinal nervous system—at first sight appears to lend but little support to the assertions that atropia has a primary spinal-stimulant action in mammals, and that atropia-convulsions are caused by the same action in both frogs and mammals. It is, however, necessary to remember that *in atropia the amount of spinal-stimulant is less*

* Meuriot, *De la Méthode Physiologique en Thérapeutique et de ses applications à l' Etude de la Belladone*, Paris, 1868, p. 96, &c.; Brown-Séquard, *Lectures on the Diagnosis and Treatment of Functional Nervous Affections*, 1868, p. 66. Both of these authors account for the increased excitability of the spinal cord by dilatation of bloodvessels,—a method of causation which, I believe, cannot be established by any evidence that we at present possess.

than the amount of paralysing action, while paralysis is more readily produced by atropia in frogs than in mammals.

The first of these propositions is founded on the fact that the principal symptoms produced by an aggregate of various doses are those of paralysis. Thus, in frogs, the smallest doses that affect motricity cause slight paralysis without any obvious symptom of spinal-stimulation; somewhat larger doses cause more decided paralysis with slight symptoms of spinal-stimulation; still larger doses cause complete paralysis and violent symptoms of spinal-stimulation; and doses so large as to rapidly produce death cause complete paralysis without any manifestation of a spinal-stimulant action. In mammals, the symptoms are alike confirmatory of this proposition; paralytic symptoms being alone present after small doses, and paralytic and convulsant co-existing after large doses.

The second proposition may likewise be established by an appeal to observation. Complete paralysis (and, therefore, absolute suspension of reflex excitability) may be caused in frogs by doses of atropia considerably below the minimum fatal. On the other hand, it is well known that in mammals even fatal doses do not completely suspend reflex excitability before death. Indeed, it is not to be expected that they should do so, for an amount of paralysis considerably short of complete suspension of reflex activity would undoubtedly cause such an embarrassment of respiration as to produce death by asphyxia.* Hence, it is necessary to employ artificial respiration in order to produce complete paralysis of motor nerves with even so powerful a paralysing agent as curara (Wourali).† It has been shown, in the first experiment, that atropia completely suspends the conductivity of motor nerves.‡ This one method, among several, by which it produces paralysis is, therefore, sufficient to account for the greater readiness with which paralysis is produced in frogs than in mammals.

These two propositions explain why atropia paralyses frogs more readily and rapidly than mammals, and also why in both frogs and mammals

* It is scarcely necessary to state that this difficulty in causing complete paralysis does not occur with frogs, because they are endowed with the function of cutaneous respiration. In this animal, reflex activity may be so far impaired by the action of a poison that pulmonary respiration is rendered impossible, but still, as the circulation continues, the poison is allowed a sufficient time to act on the living nerve structures, in order to produce on them its complete physiological effects.

† Vulpian, *Leçons sur la Physiologie générale et comparée du Système Nerveux* Paris, 1866, p. 196.

‡ This action has been already demonstrated by Botkin, Virchow's *Archiv*, Bd. xxiv. 1862, p. 84; by Von Bezold and Bloebaum, *Untersuchungen aus dem Physiologischen Laboratorium in Würzburg*, 1867, p. 13; and by Meuriot, *op. cit.* p. 90. The last author attempts to prove that it is the result of a local action on the nerves by imbibition, and not of poisoning through the blood; but his arguments seem insufficient to establish this view.

spinal-stimulant effects are manifested only when atropia is administered in doses that are near the minimum fatal—that is, in doses which contain the largest amount of spinal-stimulant action consistent with the production of a prolonged duration of symptoms.

Paralysis co-existing with spinal-stimulation forms the leading characteristic of the action of large doses of atropia on the spinal nervous system, and unless this combination be taken into account—which it has not hitherto been—the symptoms that are produced by such doses cannot be rationally explained. In the antecedent portion of this paper, this combined action has been demonstrated by a process of physiological *analysis;* and I now propose to add some confirmatory proof derived from a process of what may be termed physiological *synthesis.* This process, which is not a strict synthetical one, consists in imitating these effects of atropia by a combination of a substance that produces paralysis with one that produces spinal stimulation. The two substances I have selected are sulphate of methyl-strychnium* and strychnia. It will be seen, from the following experiment, how closely the symptoms of atropia are imitated by this combination.

One minim of a mixture of two minims of *liquor strychniæ* (B. P.) in eighteen minims of distilled water (equivalent to 0·00083 grain of strychnia) was added to three minims of a solution of 0·1 grain of sulphate of methyl-strychnium in ten minims of distilled water (equivalent to 0·03 grain of sulphate of methyl-strychnium), and the four minims of solution thus obtained were injected under the skin at the right flank of a male frog, weighing three hundred and fifty-five grains. Paralysis and flaccidity were rapidly caused. The reflex activity was frequently tested; at the commencement of the experiment, it was perfectly normal, and as the symptoms advanced, its activity gradually diminished, but there was never the faintest reflex exaggeration or other strychnic symptom. At forty minutes, the conductivity of the motor nerves was completely suspended.

On the second day, the frog was lying on the abdomen with the thorax raised and supported by the anterior extremities, *which were rigidly arched.* A slight touch of the skin caused a violent attack of emprosthotonic tetanus, lasting for seven seconds, during which the posterior extremities were extended stiffly with their webs stretched, while the anterior were rigidly arched.

During the third, fourth, and fifth days, the frog remained in this state; except that on the fifth day the convulsions were less powerful and prolonged.

* The paralysing action of sulphate of methyl-strychnium on motor nerves has been demonstrated by Dr. A. Crum Brown and the author, in a paper published in the *Transactions of the Royal Society of Edinburgh*, Vol. xxv. Part i. pp. 151—203, and (in abstract) in the last number of this Journal. I prefer this substance to curara because of its strength being constant; and on this ground I would recommend it to physiologists and physicians.

On the sixth, seventh, and eighth days, excitation caused sudden spasmodic movements merely; but the anterior extremities were still rigidly flexed.

The symptoms entirely disappeared a few days afterwards.

By combining a paralysing with a convulsant substance it is therefore possible to produce in frogs paralytic and tetanic effects, which in their general characters are indistinguishable from the paralytic and tetanic effects of atropia.

The next step was to administer to a mammal a mixture of these substances in the relative proportions employed in the last experiment. Again, the effects of atropia were imitated; for paralysis and convulsions occurred together, and formed the most obvious symptoms during the poisoning.

It was thus clearly demonstrated that such a combination of a paralysing with a spinal-stimulant substance as produces in frogs paralysis followed by convulsions, will produce in mammals paralysis co-existing with convulsions and impeding their manifestation. So that by a process of what may be termed *physiological synthesis* further evidence has been obtained in support of the conclusions, that the effects of large doses of atropia on the cerebro-spinal nervous system (excluding the mental phenomena) are due to the combined paralysing and spinal-stimulant actions of that substance, and that the difference in the relations of these effects to each other that are seen in different animals may be explained by this combination acting on special varieties of organization. Atropia, therefore, forms no exception to the general law, that poisons affect the same structures in the same way in whatever animal these structures occur.

It is generally admitted that atropia produces both paralytic and convulsant effects in mammals, but no satisfactory attempt has hitherto been made to harmonize these effects with each other, or to explain why certain doses should cause one of them to appear more prominently than the other. This investigation has shown in what manner the paralysing is related to the convulsant action; and, also, it has accounted for the special prominence in the symptoms of one or other of these actions after certain doses of atropia. It may, without presumption, be asserted that it throws a new light on the causation of some of the symptoms not only of atropia, but also of many other active substances.

The principal results that have been obtained may be thus summarized:—

1. Atropia produces in frogs well-marked convulsant and tetanic symptoms, which when present in an extreme degree form a separate stage in the poisoning succeeding that of paralysis.

2. Tetanic symptoms follow the subcutaneous administration of a dose of sulphate or acetate of atropia, equivalent to the 1-1000th of the weight of the frog, and of doses a little greater and less than this.

3. These symptoms are due to a direct action of atropia on the *medulla oblongata* and *spinalis*.

4. The differences in the paralysing and convulsant symptoms that occur in frogs and in various mammals may be explained by the greater suscep-

tibility of the former to the action of a paralysing agent, and by the amount of paralysing being greater than the amount of spinal-stimulant action in atropia.

5. The different symptoms that are produced by different doses of atropia in animals of the same species may be explained by its paralysing being greater than its convulsant action.

6. The paralysing and convulsant actions of atropia can be imitated in both frogs and mammals by a combination of a paralysing with a convulsant substance. *Journal of Anatomy and Physiology*, May, 1869.

We have to tender our best thanks to the Editors of the following Periodicals for regularly exchanging with us –

The Indian Medical Gazette.

The British Journal of Homœopathy (Henry Turner & Co., London.)

The Monthly Homœopathic Review (Henry Turner & Co., London.)

The United States Medical and Surgical Journal.

The American Homœopathic Observer.

The Western Homœopathic Observer.

The "Homœopathic Sun."

The American Homœopathist.

The Indo-European Correspondence.

The Hindoo Patriot.

The Bengalee.

The Indian Mirror.

The Well Wisher.

The National Paper.

The Dacca News.

We shall be glad to exchange with any Medical Periodical in the world.

Books, &c., for review, to be sent, carriage paid, to the Editor, direct.

THE

CALCUTTA JOURNAL

OF

MEDICINE

VOL. II.] Aug., 1869. [NO. 8.

COUTERPA... SPECIAL LIBRA... 18...

OBSERVATIONS ON DISEASE AND ITS CURE

1. Disease is some abnormal condition of one or more parts of a Living Organism.

2. The exact point of health it is difficult to determine—perhaps has never been defined. When we speak of health we speak of it within certain limits.

3. Within a certain limit the condition of parts may vary consistently with our approximative idea of health. We do not, in fact, cannot recognise disease unless this variation passes beyond this limit. This limit may be said to constitute the *elasticity* of the constitution. The breadth of this limit is the degree of elasticity which an organism possesses. The susceptibility to disease is less in proportion to the greater breadth or degree of this limit or elasticity.

4. The cause of disease is always some agent out of the body, which coming in contact with any part of the body, causes such alteration in the structure of that part.

5. The majority of our diseases are not diseases caused in this way directly They are, in fact, not the primary diseases properly so called They are the results—the sequelæ of some primary

diseases which either no longer exist having died away, leaving behind these sequelæ, or which may be continuing along with them.

6. We are generally called upon to treat these sequelæ, and not the primary diseases. In fact, the primary diseases are seldom thought of either by the patient or the doctor.

7. Now the same sequelæ may arise from different primary diseases. But though in appearance the same, yet as originating from different causes, they should be looked upon as so many different effects, as so many different diseases. This is what we understand by the ultimate genesis of disease.

8. Treatment, to be scientific, specifically curative—not mere bungling interference on what are falsely called general principles, must recognise, find out, and be directed towards, this ultimate pathogenesis.

9. Diseases are revealed by what are called vital symptoms and physical signs. Symptoms are subjective phenomena—abnormal sensations, therefore felt only by the patient himself. Physical signs are objective phenomena and may be recoginsed both by the patient and the physician; but in most cases, they are only known to the doctor.

10. We look upon symptoms as essential indications of a disease. Physical signs are to be looked upon as mere auxiliary evidence—of value only as confirmatory or corrective of the diagnosis from vital symptoms.

11. Symptoms are the effects of impressions made upon the nerves by the abnormal condition or disease—either directly or sympathetically. If there had been no nervous system, there could have been no symptoms—in fact the disease would have remained perfectly unrecognised by the patient.

12. The symptoms may not be referred directly to the part diseased. The impression made upon the nerves of the part may be simple irritation which may not be transmitted direct to the sensorium—but through an intercommunicating system.

13. But though a symptom may not directly point to the diseased part, still if our knowledge of the nervous system had been perfect, we could at once trace it to the original irritation which had given rise to it. It is evident therefore how essential it is to be acquainted with all the symptoms of a case. The

aggregate of symptoms constitute, at least for the patient, the disease.

14. Symptomatic treatment, as ordinarily understood, is certainly the treatment of ignorance. But treatment, based upon a knowledge of all the symptoms, by which we arrive at a knowledge of the primary morbid lesion and all their sequelæ, is the only scientific treatment imaginable.

15. Thus it must be evident that what we call Phthisis may not be one disease—but it may be a variety of diseases as originating or resulting from a variety of primary morbid lesions, consequently our diagnosis of disease becomes a much more complicate and a much more difficult affair even than what we think it to be.

16. Now the primary morbid lesion may be either co-existent with its sequelæ, or it may be no longer existing. If co-existing, treatment to be really effective—radically curative, must be directed in the first instance to that morbid lesion and then or at the same time to the sequelæ.

17. If absent, then it becomes a question whether treatment ought not to be directed to the sequelæ, through the channel of the primary morbid lesion.

18. Experience alone can decide whether in the case of the continuance or otherwise of the primary lesion, treatment directed to it alone will suffice to remove the whole of the disease under which the patient is suffering. Perhaps when the sequelæ have become so developed as to become independent diseases formidable in themselves, treatment should need to be directed against them directly in addition to that directed against the primary lesion.

19. In what way are we to attack the primary lesion? To ascertain this we must determine the nature and cause of the primary lesion.

20. To understand the nature of the primary lesion we must understand the histology and physiology of the part affected.

21. In the first place, it is necessary to know its innervation—peripheral as well as central. It is a well ascertained fact that the nutrition of a part is dependent upon its innervation in so far as the regulation of the quantity of blood supplied to it is concerned.

22. In the second place, it is necessary that we should know all its relations with other parts—whether it be by contiguity or

continuity of structure, or through the general systems of communication, as the nervous, vascular, &c.

23. In the third place, we should acquaint ourselves with the structural character of its ultimate elements; as to how they are arranged with respect to each other, as well as to nerves, blood-vessels, &c.

24. We should further bear in mind in what various ways we can reach and influence or affect the various parts of the body.

25. The superficial parts—skin and a great portion of our mucous membranes—are within direct reach. The other parts we can only reach through either the vascular or the nervous system. In either case we influence the conditions of nutrition of the part materially, by actual contact, when the vascular system is the channel of communication,—dynamically when the communicating channel is the nervous system.

26. The same exciting cause may give rise to lesions in different parts of the body at the same time. And according as the number of those parts are more or less, diseases are classified under the heads—*general* and *local*.

27. A disease at first local may secondarily affect, in fact, if it continues long, must affect, the whole constitution and thus become general. But it may also happen, though rarely, that a constitutional disease may in time declare itself and settle down in a limited locality. It is even under these circumstances still a matter of doubt, if the whole constitution is not nevertheless still under its influence.

28. If we could strictly arrive at a natural classification of diseases, even then it would be questionable whether such a classification would be any help to therapeutics beyond being a guide to only certain general indications. Our classifications of diseases, as they stand at present, are, to say the least of them, of no use, as far as treatment is concerned.

29. When we remember how not only the various races of mankind differ from one another in constitutional peculiarities, but how even individuals of the same race thus differ amongst themselves, nay how even the same individual is a different being at one period of his life from what he is at another, when we remember all this, we can easily understand how impossible it is to treat diseases by names. Nosology, as at present constituted,

is of the same use in therapeutics as taxonomy of plants is of use in enabling us to discover their properties.

30. We have said the cause of disease is always from without. Although hereditary diseases seem to be exceptions to this general proposition, still if the matter be considered deeper, even these will be found to own external agents as their primary causes. Although in the case of the offspring the disease is inherent in the constitution, still as that disease has been transmitted by the parent, and as in the case of the parent the disease has been generated by the operation of some external agent on his constitution, it must be evident that the ultimiate cause of disease is always from without.

31. The primary morbid lesion may be caused either directly, that is, by immediate contact of the cause, or indirectly through some communicating or influencing system. In the latter case it may be questioned if the communicating or the influencing system is not the seat of the primary lesion. When a distant organ or part is influenced through one or more peripheral nerves, in strict logic, the primary lesion must be considered to be produced in those nerves. The reason why these nerves are not looked upon as the seat of the primary lesion is because this lesion is transient, whereas the affection of the organ or part thus influenced, becomes permanent.

32. The original exciting cause may either continue to exist in the body, or it may not.

33. The immediate channels through which the cause may enter the system are of course the cutaneous and the mucous membranes; and then it will either irritate the nerves at once, or enter either the blood-,or lymph-,or chyle-,vascular system, and mingle with their contents. Mingling with the blood, the lymph, or the chyle, it will either spend itself in modifying one or more of its ingredients, or these fluids may act simply as its carriers to the parts with which it has special elective affinity, or it may both cause alteration in them and at the same time be carried by them to special parts.

34. Unless it agrees in composition with any tissue of the body, its action upon the tissues will be that of a foreign body, in essence that of a poison. And disease will be caused by its presence in the system in either or both of two ways—by its

own direct action upon the tissues, or by the failing efforts of nature to eliminate it through one or more of the excreting organs.

35. Such causes of disease which by their actual presence in the system cause disease are called morbid poisons. And it must be evident that one or more such morbid poisons may co-exist in the system. And the development of their respective specific effects—or diseases—will depend upon the fact of their modifying each other.

36. The modifying influence of one poison upon another may be either to neutralise, to aggravate, or to diminish each other's effects. Or it may be such that the effects of one will be produced first and then those of another.

37. Researches into the co-existence of morbid poisons in the system and their modifying influence upon one another are a great desideratum in medical science. It is our belief that such researches will throw a flood of light upon the etiology of allied diseases and upon anomalies presented by several diseases.

38. The fact of disease entailing suffering in the first instance, and subsequently shortening life, calls for its removal. According as this removal is total or partial we are said to cure or alleviate.

39. The great object of Therapeutics, therefore, is the removal of Disease.

40. Now what do we mean by the removal of disease? If it had been a distinct entity or substance superadded to the constitution, the removal of disease would have not only a figurative, but like-wise a literal signification. Disease, as we have seen above, is not any thing superadded to the constitution, but a mere abnormal state of that constitution. And essentially it is of the nature of an injury. If we adopt engineering language, removal of disease would be repair of this injury. In strict scientific language this would be restoration of the organism to its normal state.

41. A right understanding of the essential nature of disease is necessary to a right understanding of the steps to be taken for its removal.

42. Disease has been ordinarily divided into two principal classes—organic and functional. Modern research has shown

the untenableness of this classification. Functional diseases have been shown to depend upon lesions of structure not easily discoverable by the unaided senses, but generally detectible by the microscope. It has not however been clearly shown that disease is both static and dynamic, organic and functional; along with the statical disturbance, there being always dynamic deflection.

43. This leads us back to the view we take of the organism. The very term itself indicates this. The organism is a machine whose integrity depends upon a certain relationship which its parts bear towards each other. This relationship or arrangement of the parts is maintained by force.

44. In the case of the living organism we know there are several forces in operation—in fact all the forces of which we have knowledge. We know again that the various forces are convertible. We are however as yet ignorant whether the various forces in operation in the Living Body have one single Resultant to be called the Vital Force or whether there is a Force quite distinct from them (i. e. not convertible into any of them) which keeps them under subjection. The latter is the view formerly used to be held. The tendency of modern opinion is towards the former. Dr. Beale however by his recent researches seems to be reviving the latter.

45. If we are to look upon the vital force as essentially different in kind from the other forces in work in the organism not convertible into them, nor resulting from them, we must regard it as inherited, descending from the parents with the vitalized germ. Even in this view, it must be looked upon as the resultant of the vital forces of the germ-cell and the sperm-cell. Because the offspring is never differentiated into a distinct being except by the union of these two separate organisms. Neither the germ-cell, nor the sperm-cell alone being ever developed into an independent organism capable of reproduction.

46. The experiments that have been made with a view to produce living organisms independent of pre-existent organisms, may be said to have not as yet succeeded. So that according to the present state of science it must be acknowledged that living organisms are only produced from pre-existing organisms. Whether we should ever succeed in producing living organisms independent of pre-existent living organisms it is now idle to

speculate about. This much may be said however with regard to the vital force, that should this be possible, the theory of the essentially distinct character of the vital force would fall to the ground. The vital force would then be proved to be but a different phasis of the physical forces.

47. Disease, as we have seen above, is always traceable to the operation of external agents upon the organism; and this operation is always attended by at least some molecular disturbance of one or more parts of the organism. Such being the case, is there any essential difference between surgical injuries and disease properly so called?

A CASE OF TOBACCO-POISONING; AND THE DANGERS OF LAY-DOCTORING.

The following case of poisoning by nicotiana, related by Dr. Maurice Evans in the *Lancet*, June 19, is both interesting and instructive:

I was summoned on the 21st instant to see a little boy, seven years of age, said to be in a fit. On arriving at the house, I found him completely insensible, cold, pulseless, with prolonged respiration. On trying to rouse the child, I discovered a blackish patch, about the size of the palm of the hand, on the side of his neck, which I was informed was ringworm, and that an ever-ready old woman prescriber, with which this neighbourhood is blessed, had advised the parents to procure an old much-used tobacco pipe, to scrape its interior, and apply the ash, mixed with a little oil, to the abraded surface. In the course of half an hour the child went to his father complaining of a sense of choking, tottering in his gait, and vomiting. I saw him about twenty minutes after, and found him in the state above described. The father assured me the quantity of ash applied could be held on the point of a tolerable-sized penknife. The treatment pursued was, having the part immediately well washed with soap and water, rousing the little patient, administering ammonia and coffee, with friction to the limbs, &c. Consciousness and reaction soon commenced returning, and in an hour or so the child was out of danger.

In India, perhaps more than in any other country, the propensity to offer medical advice is deep-rooted, so much so that it well-nigh seems to be a natural propensity, and we are almost inclined to suspect that if we were to apply Gall's organological method, we would find a bump in the Native head, corresponding to it. It is wonderful that there is hardly a single individual who has

not something, and something of use and importance, to say about any and every disease that may chance to come in his way. Is a relative, or a friend, or even any fellow-being ill, our wise heads cannot rest satisfied till they have delivered themselves of some sage counsel or suggestion, and it matters not whether the unfortunate relative, friend, or fellow-being is already under treatment or not, nay it matters not even if he be under the ablest treatment. We must suggest something in addition to what the doctor has prescribed, or we have not done our duty! Some hesitation or compunction may now and then be felt in suggesting internal remedies, but none whatever in suggesting diet or external applications. There is no harm in applying this thing or that thing externally to the sore or the eruption, while you are taking the doctor's medicine, is very often said by our wiseacres. And the external applications that are suggested are very often made up of the most virulent poisons—tobacco, hemp, opium, arsenical preparations, nux vomica, preparations of copper, antimony, &c., &c.

For the same reason that every one here has more or less doctoring propensities, we expect and do find that the patients whom we are to treat exercise the same propensities even in their illness. Even when in the hands of the ablest men in the profession he must say something of this drug or that drug, of this system or that system. It would be well if the doctor would do this or do that instead of this or that. Curious that some must have—say quinine when we do not consider it appropriate in their cases, and *vice versâ*. Sometimes this doctoring propensity is displayed to an extraordinary and disgusting extent. The doctor is expected to treat at the dictation of the patients or of his relatives and friends. The result can be easily imagined: Change of doctors and No Cure.

ON THE DESIRABILITY OF CULTIVATION OF THE SCIENCES BY THE NATIVES OF INDIA.

Under our *Gleanings* will be found an able essay by Dr. Lankester, a most eloquent appeal for the introduction of the teaching of natural science in the schools of Great Britain. We could hardly conceive such a state of things as described there to exist in enlightened England. We could hardly believe that England with all her boasted civilization was actually behind the other European Nations in a matter which pre-eminently distinguishes the civilization of modern days. But what after all, it may be asked, is civilization? Definitions are certainly the most difficult things in the world, and the definition of civilization is difficult *par excellence*. Without however venturing to define what civilization is, we may confidently say what it is not, and what it is incompatible with. Our ideal of civilization is incompatible with arbitrary restrictions upon the liberty of thought and private judgment and with prejudice of every description. And it matters not whether the restrictions come from the legislature or from public opinion, and whether the prejudice exists among priests or among men of science. If judged by this standard no European country can be said to be civilized, we cannot help the inference. Absolute toleration of all opinions should mark civilization properly so called. Until men should learn to respect each other's honest convictions, and until they should be free from all prejudice, in other words, be fearless of the consequences of discoveries in the fields of knowledge, they cannot be said to have become civilized men, men true to their own natures.

The one thing which can secure this blessing to mankind, this toleration, this freedom from prejudice, is knowledge. The more we know, the more we know that we do not know;—in the impressive language of the late Dr. Chalmers, the more the sphere of light, representing positive knowledge, is enlarged, the more the circumference, that divides the light from the darkness beyond, becomes necessarily enlarged. The oracle of Delphi pronounced Socrates to be the wisest man in Greece, because he alone was fully aware of his own ignorance. A legitimate inference from this knowledge of our ignorance is

that others may know what we do not know. And the moment the mind comes to this normal condition the conviction will be forced upon it that it is illogical, and therefore unphilosophical, nay sinful to *pre*-judge, or judge *à priori*, and far more to condemn, opinions honestly put forth by other minds.

The kind of knowledge which is best calculated to remove prejudice and the spirit of intolerance from the mind, is what passes by the name of the Physical Sciences. And the reason of this lies in the fact that in the pursuit of these studies there is no room for dogmatism. We are certainly at liberty to advance opinions and hypotheses, and opinions and hypotheses, so long as they are suggestive, have their value in scientific researches, but we have no right to urge them as facts until they have been verified; so that whoever questions their correspondence with nature can at any moment satisfy himself by observation and experiment.

The world is yet being largely governed by the despotism of traditional opinions, opinions which have come down from the darkest ages, and which are still pertinaceously held by men who are no better than idlers, and who trifle with God's truth and with God's great gifts to man—his powers of observation and reasoning. These opinions are held not only concerning morals and religion about which the widest latitude still prevails, and may be allowed to prevail, but strange to say concerning the material universe also, about which, among those who will but open their eyes, there ought not to be any difference whatever. The world is flat, the world is the centre around which the heavenly bodies perform their daily revolutions, man has been created only six thousand years ago—these and such opinions as these are still held as veritable truths, to disbelieve which is to risk even one's salvation. With such ignorance will some men domineer over their fellow-men, and exact implicit obedience to their dicta. This, to say the least, is a mistake. It turns men from the precious truths with which these fables are unfortunately associated in the ancient records.

But nowhere is this despotism of traditional opinions more severely felt than in this country. The Hindu religion, besides having in a pre-eminent degree the grand characteristic of all religion, which is to divorce the mind from the works of God, is

besides a heterogeneous medley of theology, philosophy, science, and what not,—in other words, is a chaotic mass of crude and undigested and unfounded opinions on all subjects, enunciated and enforced in the most dogmatic way imaginable. The Hindu mind, thanks to this religion which has been swaying it for centuries without number, and thanks no less to its other surroundings, has lost much of its original Aryan vigor and energy, and has become more of a speculative than of a practical character, singularly deficient in patient industry to observe and collect materials, too prone to hasty generalizations, depending more upon its own inspirations than upon outward facts. Thus altogether, though highly endowed, it has been little productive of results.

India is, properly speaking, Hindustan—the land of the Hindus; for though apparently and perhaps ethnologically she is peopled by a variety of races, the tie of religion has made them all into one family. The British Government has indeed a most solemn trust, the regeneration of a vast dependency, of the once glorious Hindu nation, the awakening to life and liberty upwards of one hundred and eighty millions of souls, down-trodden for centuries by foreign yoke and a most de-energizing religion. It must be acknowledged with gratitude that England, despite all shortcomings inseparable from a foreign rule, is doing her duty right royally. She has become aware that her true glory should consist not in simply holding under subjection the people of India, but in elevating them in the scale of nations, in taking them by the hand and reconciling them to their long-alienated brethren, her own children.

But while the British nation has a duty to perform towards us, it must not be forgotten that we have a no less solemn and sacred duty towards ourselves, imperative alike by gratitude for the unspeakable benefits we have received under British rule, and by patriotic feeling for the land to which we have the honor and the pride to belong. It is true that born in India we have inherited submission to a foreign yoke, but it must be our consolation that we have inherited a mind not inferior in its endowments to the mind of any nation on earth. Through adventitious circumstances that mind has indeed lost much of its vigor and activity, yet it has already given promise that it is capable of as much activity and vigor as any in the world. Thorough regeneration

of the people of India will, of course, be the work of time and of favorable circumstances, but it is in our own hands, if we will but have it.

One of these favorable circumstances is self-reliance. This we have not yet learned. For any move tending to our own prosperity we expect always to be helped by Government. If the Government were to do every thing for us, we shall never do any thing for ourselves. We must be weaned from this sort of dependence upon others, just as a baby is weaned from the mother's breast. It should be our earnest endeavour to back the efforts of Government to do good to ourselves.

It is impossible to say whether the day shall ever come when we shall be able (we do not say allowed) to take the reins of the government of our country in our own hands. But this is certain, and we cannot be too grateful for it, that we are gradually getting more and more share in it, that every day almost, thanks to the current of inherent generosity that flows through every British heart, some obstacle or other is being removed, that stood in the way of our being recognized as brethren, though now fallen and degraded. And when all these obstacles will be removed we do not see in what respects politically will a native of India differ from a native of England.

We believe a day will come for the world when the present forms of Government will cease, when in fact, the superstition attached to them will be incompatible with the progress of the times. But for the present we should deem ourselves fortunate, indeed, if we enjoy the same liberty of thought and action as any Englishman does. This would be enjoying more liberty in fact than a Hindu ever did in his own golden ages. Nothing in our opinion could be greater tyranny than the monopolizing of learning by one section or caste of the community, which prevailed in India even in the most ancient times. Let us thank Heaven then, that though nominally under a foreign power, that foreign power is really more friendly towards us, than what we could call our own ever was; that we live in better days, when we have fuller opportunities of developing the ends of our being, of fulfilling our destiny.

The best method,—and under the present circumstances, the only method, that we can conceive of,—by which the people of India can be essentially improved, by which the Hindu mind can

be developed to its full proportions, is, as we have seen above, by the cultivation of the Physical Sciences. The great defects, inherent and acquired, which we have pointed out as characteristics of the Hindu mind in general of the present day, can only be remedied by the training which results from the investigation of natural phenomena. The despotism of a religion, debasing in all its present phases, and of time-honored customs, which, whatever their original philosophy, have become mischievous in the extreme, can only be shaken to its foundations by the irresistible force of recoil which the mind will acquire, when fed upon the substantial nourishment of pure truths as presented direct by the handiworks of God.

In order that these truths may exert their full influence, we should not only present them to the mind, but it is necessary also that the mind should be so trained that with patience and diligence it may discover them for itself. It is thus only that the Hindu mind will be in a position to shake off its inherent indolence and apathy and to appreciate the laws of nature or the workings of the Divine Mind.

This training of the mind is a most difficult part of education, and can only be conducted either in schools and colleges, or by public lectures. In a late No. of our Journal, while speaking of the preliminary education of candidates for the medical profession, we took occasion to point out the laxity of our University rules regarding the teaching of natural science in our educational institutions. It may be some consolation, though a very poor one indeed, that similar institutions in England do not fare much better. To compensate, however, for this deficiency, there are, in England, public institutions where experimental lectures are delivered by the eminent cultivators of science. Here, on the contrary, there is nothing of kind. The only scientific Institution of any respectability in all India is the Asiatic Society of Bengal. It has done and is doing much for the advancement of science in this country. But it does not present to humble learners any facilities for the pursuit of scientific studies. Nor is it necessary or desirable that it should. It is well that with its higher pretentions it should engage itself in new fields of research.

We want a different Institution altogether. We want an institution which shall be for the instruction of the masses, where lectures on scientific subjects will be systematically delivered,

and not only illustrative experiments performed by the lecturers, but the audience should be invited and taught to perform them themselves. And we wish that this Institution be entirely under native management and control. We say this not out of vanity but simply that we may begin to learn the value of self-reliance in matters in which we may do it without any serious risk.

Nor do we think this to be absolutely impossible. The question is not one of capability but of feasibility. We are confident on the score of intellectual capability to carry on the thing when fairly set agoing. As to its feasibility it depends upon one condition—Money. With sufficient funds to meet the expenditure, we are almost sanguine that not only will the project be carried out, but carried out most creditably. And ought we to shrink from this noble duty for want of pecuniary resources? We hear there were Rajahs and noblemen of olden days, not much older than our own, who were liberal to the extent of spending lacs of money in the marriages of pet dogs and cats. And we hear of a Rajah even in our own time, who is said to have spent thousands for the burial of a dog. We must say we are sincerely glad at this, inasmuch as it indicates a spirit of liberality in the individuals who have so signalized themselves. We are only sorry that liberality did not take a more healthy direction, but we are almost sure that it was owing purely to want of knowledge, knowledge of the uses to which money might be turned. May we not hope there are Rajahs and noblemen who have known better uses of the immense wealth so many of them possess! May we not hope that they will be willing, if only they are informed; to spend a fraction of their wealth for such a glorious purpose as the amelioration, nay regeneration of their own country, when their ancestors could spend so liberally on such ignoble and ridiculous occasions as the marriages and burials of dogs and cats? From one illustrious example we have much ground of hope. It will no doubt give our readers and all genuine well-wishers of our country sincere pleasure to learn that in the person of His Highness, the Maharajah of Khettree, we have a prince who has intelligence to appreciate the benefits that are derivable from the cultivation of science, and who has true patriotic enthusiasm to see those benefits availed of by his countrymen. Are we to suppose there are none amongst our Rajahs and Princes to imitate his bright and noble example?

PRICKLY HEAT AND BOILS.

By Leopold Salzer, M. D.

In this dreary and oppressive season of an Indian July month, many have, in addition to their summer-sufferings, to complain of the most vexatious evils: Boils and Prickly heat. Those affected with the one or the other, are generally impressed with the idea that, nothing must be done to cure these complaints, lest a grave constitutional derangement might arise by repelling what nature has decided to throw off, and they suffer the more by it. For there has hardly one crop of boils disappeared when another pushes forth, reproducing anew a whole train of acute pains. The idea about the inadvisability to cure Furunculosis is not absolutely restricted to laymen; humoral pathology has not yet died out amongst the members of the medical profession at large. Fortunately, or unfortunately, there is always a class of men on hand, who would not allow any diseased condition to pass as irremediable unless you pay them for it; and so it comes that one can get at least a dozen of universal remedies, contrived by clever drug-mongers and zealously advertised in our dailies and weeklies. For a trifling amount you can if you are a believer in marvels, have a something which works wonder in all diseases of the skin. And should you happen not to know, to what different diseases your poor skin is liable, the following specification will tell you all about it: Freckles, blotches, acne, lichen, blains, boils, herpes, scaly eruptions, ringworm, ezcema, scabies, scald head, pustular eruptions, rupia, lepra, elephanthiasis, syphilitic eruptions, foul ulcers, indolent tumors, cancer, and last but not least—etc. etc.

The fact is, furunculosis may be either idiopathic, that is to say, a morbid state of the cutaneous structure as such, or symptomatic, that is, a morbid expression of a deeply seated constitutional disorder. The immediate consequence to be derived from this division is, that the latter class of furunculosis urgently demands the interference of a rational medical treatment, known as it is, that those constitutional disorders connected with cutaneous diseases, are, as a rule, of a very bad sort, tending to become chronic and seldom getting well, at least completely well, by themselves. The plan of treatment pursued in such cases,

is simple enough, equally carried out by both Schools of Medicine although by different ways and means; it is on the *tolle causam* principle that we strive to free our patient of his cutaneous complaints. Otherwise stands it with regard to furunculosis of an idiopathic nature; here the two schools widely diverge from the very beginning in their therapeutic attempts. For while Allopathy goes derivatively to work, acting, for want of any better method or a principle which theoretically has long ago been recognised as erroneous—Homœopathy has the advantage of addressing her remedial agents directly to the diseased structure, and we possess in Arn., Rhus Tox., Sulph., and Phosph. remedies, which, when properly selected will seldom fail to reward the practitioner with a satisfactory result. It is not my intention to illustrate the above by "cases," since they could add nothing to what every well-versed practitioner knows about it from his own experience.

Much less, if at all, is the general practical experience with regard to the treatment of prickly heat; it might therefore not be amiss to say a few words about this subject. The following extract from Dr. Martin's "Influence of tropical climates on European constitution" contains all that is known, and well worthy to be known about the Lichen Tropicus or Prickly heat. "Few Europeans" writes Dr. Martin, "escape from this, the most primary effect of a hot climate, for it can hardly be called a disease. The sensations arising from prickly heat are perfectly indescribable, being compounded of pricking, itching, tingling and many other feelings for which there is no appropriate appellation. It is usually, but not invariably, accompanied by an eruption of vivid, red pimples, not larger in general than a pin's head, which spread over the breast, arms, thighs, neck and occasionally along the forehead, close to the hair. The eruption often disappears to a certain degree when we are sitting quiet, and the skin is cool; but no sooner do we use any exercise that brings out perspiration, or swallow any warm or stimulating liquid, such as tea, soup, or wine, than the pimples become elevated, as to be distinctly seen, and but too sensibly felt.

"Prickly heat being rather a symptom than a cause of good health, its disappearance has been erroneously accused of producing much mischief; hence some of the early writers on tropical

diseases, harping too much on the humoral pathology, speak very seriously of the danger of *repelling*, and of the advantage of 'encouraging' the eruption, by taking warm liquors as tea, coffee, wine, whey, broth, and nourishing meats. Even Dr. Moseley retails the puerile and exaggerated dangers of his predecessor Hillary. 'There is a great danger,' he says, 'in repelling prickly heat; therefore cold bathing and washing the body with cold water, at the time it is out, is always to be avoided.' Every naval and military surgeon however, who has been a few months in a hot climate, must have seen hundreds, if not thousands, of seamen and soldiers plunging into the water for days and weeks in succession, covered with prickly heat, yet without bad consequences ensuing.

"The eruption is seldom repelled by the cold bath, which rather seems to aggravate it, and the disagreeable sensations belonging to it, especially during the glow which succeeds the immersion. It certainly disappears suddenly sometimes on the accession of other diseases, but there is no reason to suppose that its disappearance *occasioned* them. At the same time cold bathing and repellents are not to be recommended in this eruption, even in persons of robust constitutions, recently arrived in the country, and who are in the enjoyment of good health. Where any organ happens to be weak, on the other hand, or any tendency to disease exists, the repulsion of an eruption is by all means to be avoided, and the more so if the sufferer have been long resident of the country.

"Hair-powder, lime-juice, and a variety of external applications have been used for the removal of prickly heat, but with little or no benefit. The truth is that the only means productive of good effect in mitigating its violence, till the constitution becomes assimilated to the climate are—light clothing, temperance in eating and drinking, avoidance of all exercise in the heat of the day, open bowels; and lastly, the use of the punkah, or large fan, during the night."

Guided by the pathogenesis of *Ledum Pal.* I had a strong belief that this drug may prove more or less beneficial in the affection under consideration. Unfortunately I have been this summer spared that tropical evil and had therefore no opportunity of trying its suspected therapeutic effects upon

myself. On the other hand it is not easily tried on others, because of the common error mentioned in the above abstract still prevailing amongst the Europeans here. My experience in this respect is therefore restricted to two cases only; but I am happy to say, both of them proved so satisfactory that I look upon *Led. Pal.* as a specific in prickly heat. It does not do away with the red pimples accompanying the prickly heat, at least it has not done so in the two cases I had the opportunity to observe; but it makes them, even when they exist, harmless, by breaking off those disagreeable sensations which characterize this cutaneous complaint. Properly speaking, I might say, *Led.* is not as much a specific against Lichen Tropicus as against prickly heat, although both terms pass as identical.

The subject of the first case was a gentleman, or rather a poor man, poor people having, according to Anglo-Indian social notions, no right to be called gentlemen. He was, as far as clothing was concerned, quite unprepared for an Indian summer, and had worn his black-cloth jacket for want of any clothing of a lighter kind. At the same time he ran about the greatest part of the day, seeking for a situation. It would be useless to add that he had, under such circumstances, to resign the luxury of a night punkah. No wonder that he was affected with the worst kind of prickly heat. In fact when he saw me first, he said, he felt there must be something done for him in this respect, else he would fall sick. I gave him 10—12 drops of Tincture *Led. Pal.* in 4 ounces of water, to be used as an external application three times in the night, should he, as usual, be unable to sleep. When I saw him next he had used it once, namely in the first part of the night. He immediately felt relief, which he however then ascribed to the effect of the water as such, having always experienced a temporary relief after bathing or washing himself; he fell however against his custom soon asleep. He might have slept 2—3 hours when he awoke; his usual prickling sensation with him. But he could not make up his mind to repeat the former operation as he felt a quite extraodinary dryness of the mouth, a clogging sensation in his throat and a more or less heavy breathing—phenomena he readily ascribed to the repelled Lichen. To me it appeared more than probable, the origin of

these phenomena are to be traced to the action of the tincture administered. In fact, the striking similarity between the related symptoms and the pathogeneses of *Led. P.* with respect to the throat and respiratory organs made my suspicion obvious. I therefore ordered to discontinue the external application and gave him *Led.* 6. a quarter of a drop to be taken every four hours. After 3—4 days he was almost totally relieved of his affection, and remained so for more than a month, in spite of his having continued his above described, most unfavorable mode of life.

The subject of the second case was a lady who suffered from menorrhagia. Nearly a year back, when she was still in England, she remarked that her menses appeared a few days sooner than she expected them. Since then the intervals between her periods became gradually somewhat shorter. When she consulted me, she menstruated nearly every 18 days. Her rheumatic diathesis caused me to prescribe *Led. P.* On my next seeing her, I was informed, without any previous enquiry on my part, that the medicine had a most soothing effect upon her, even her prickly heat has entirely ceased to vex her!

REMARKS ON THE ETIOLOGY AND TREATMENT OF CHOLERA.

By Babu Gopal Chunder Roy.

Much has been said by practitioners concerning the nature of this disease. By some it has been likened to malarious fever in which the cold stage is more exaggerated, while by others it is regarded as an attempt of nature to throw away a morbific poison from the system through the alimentary canal in the form of a flux, the drain of water thus produced inspissating the blood and subsequently giving rise to the fatal symptoms. Whatever theory we adopt, we know pretty certainly that it rages epidemically in certain parts of the year. If after a long continued drought we get a scanty shower of rain, we can predicate with some truth an impending visit of the epidemic. By some this phenomenon has been taken advantage of to prove that sudden transition from heat to cold is a favourable cause of cholera whilst others adopt malaria or an allied poison as the originator of the disease. In opposition we may hazard a general belief that if the rainfall be abundant and if the temperature be thereby persistently lowered, the onset of the disease may be efficiently checked. I have carefully observed the visitation of an epidemic in Nagpore where during the hottest period, the climate was remarkably healthy, but no sooner was the parched ground relieved by a scanty rainfall than it supplied the conditions favourable for the propagation of cholera. In Bengal where moisture and heat prevail combined in most of the year, the disease is found in its endemic form. My impression is that moist heat produces such an electric change in the conditions of the blood that its fluid part acquires an unnatural tendency to exude from its vessels which if not checked in time it develops itself into cholera.

The fact of the complete and easy arrest of cholera at its commencement by opium, adds great weight to the hypothesis which I venture to put forth; for if we believe any poison to be latent in the system, it is preposterous to suppose that one dose of opium would at once counteract its influence and put a permanent check to the manifestation of the disease. The previous state of the patient has a great influence in predisposing him to its attack. If he be suffering at the time from bowel

complaints we must be always on the look out that one disease does not merge into the other. Living in a noxious atmosphere or in a room saturated with choleraic evacuations, has the power of creating a susceptibility to its influence, and I have painfully witnessed human lives endangered which could have been avoided if proper hygienic measures had been, from the beginning, enforced. Now the question is opened to us—is the cholera communicable? Many controversial opinions are still expressed with regard to this important topic, but from what I have observed I cannot but come to the conclusion that it is in some measure a communicable disease. In spite of my protestations against keeping the cholera patients in the general ward, two cases were admitted at the Nagpore City Hospital on the first out-break of the epidemic. One of them occupied in the verandah a bed standing on a mud floor and had frequent necessities to pass his evacuations on the ground. Owing to defective management of the institution the stools were on each occasion allowed to be absorbed by the ground for some minutes before they could be removed. Two days after the death of this patient a fresh case broke out in the room facing the verandah, in the person of a girl who was in constant attendance on her father for some other illness, and about a week after this, another case broke out in the adjoining room. After some days a third patient that was allowed a bed in the same place occupied by the 1st cholera patient (the mud floor of which was since then not dug out and thrown away) got cholera and died. After this the patients were turned out, the rooms were white-washed and the earthen floor was dug out and replaced, when further cases of cholera ceased to appear. Are not these convincing proofs of being the disease, in some measure at least, communicable? Whilst the female side was totally free from its attack, nay whilst there were cases observed few and far between in the whole surrounding neighbourhood, why should there be so many cases in one portion of the building and contiguous to the place first occupied by a cholera patient? I am led irresistibly to the belief that if continually exposed to the emanations of choleraic stools, few can withstand their deadly influence. It will be observed also that the pulmonary organs are mainly instrumental in imbibing the poison. The part

which a defective water-supply plays in the propagation of cholera, is also worthy of notice. Whether it is that water becoming impregnated with the germ of cholera, in however minute proportion it may be, spreads the disease in the neighbourhood, or that foul water favors the peculiar condition of the blood to which I have before alluded, I am not in a position to maintain. But this is a fact from which some useful deductions may be made, that whilst one part of Nagpore that derived its water-supply from a neighbouring hill was entirely free from cholera, in the other, where on account of distance the water was chiefly drawn from *nullahs* or shallow dried-up wells, there was mortality by scores.

The above are the conditions which are considered as favorable for the propagation of cholera, and the spread of the disease is assisted by inattention to cleanliness and hygienic rules. If these are strictly observed, it is not too much presumption to say that in time we can expect to stamp out cholera from a country.

Passing now to the treatment, we divide it into two heads, preventive and curative; of which the first is more important and promises a better success. In this we should pay all attention to hygienic principles. At a time when cholera is prevalent, we should use wholesome or filtered water for drinking purposes, avoid over-feeding or obnoxious diets and keep aloof from exposure to the sun or from tiresome work. Segregate your cholera patients altogether, disinfect the stools and destroy the clothes soaked with the discharge. Let not a cholera-room be overcrowded, and give relief to the attendants as much as possible from their work. After death or recovery of the patient, let the room with the floor be scraped and white-washed before use. Disregard of these sanitary measures is often followed by deplorable consequences, as have been witnessed especially in the North-west, where, on account of their noted uncleanliness, the people overlook these precautions, and you scarcely hear of one case of cholera in a house when it is not shortly after followed by another. Thus last year whole families were entirely annihilated at Allahabad; and at Nagpore I observed each family lost 2 or 3 of its members. Don't be over-anxious to escape from cholera, for I believe constant dread of the disease favours its generation in the system. When the disease commences as diarrhœa, stop it by a good dose of

opiate. In those virulent forms where after one evacuation the pulse sinks and the body passes into an algid state, the efficacy of opium is doubted, but still I will blame the practitioner of groundless fear if he withholds its administration at the commencement. It is when the disease is fully developed that the drug is injurious to the system. Very often I have relieved patients from coming fully under its influence by doses of opium even at a time when the appearance was shrunk, voice depressed and the pulse was sinking, but if you find after two doses the disease is on the increase and is passing rapidly into the stage of collapse, you have got the indication for discontinuing its use. The pills commonly distributed by government to the people at large, consisting of pepper, asafœtida, camphor and opium, are as potent for good as for evil in the hands of uneducated men. Now when the disease is fully developed what line of practice we should adopt? I am afraid I can recommend nothing as effective. It is a rule in all epidemics that the disease is more virulent and intractable at its onset than at its decline. The first cases of cholera in an epidemic season nearly always prove fatal, and as the disease spreads recoveries become more frequent, till latterly the ratio of mortality becomes the least. If therefore you give trial to a medicine at the first outbreak of the epidemic you are likely to meet with sad disappointment, whilst at its decline anything will effect a cure. Hence, I believe, the vaunted potency of tinct. quassia, castor oil, calomel, or homœopathic treatment of cholera. With regard to the last I intend to watch a few cases before I can give a positive opinion on the subject.* I have tried pouring stimulants and astringents without the slightest sign of benefit and administered calomel in heroic doses. With regard to calomel, my number of cases has not been sufficient to warrant a conclusion, but this much I may say that it requires a more careful attention than it has received hitherto in the hands of practitioners for the ungrounded fear of its causing salivation. Although my number

* Would it not have been better and more philosophical, if Baboo Gopal Chunder had ventured on his "I believe" *after* having actually watched cases under homœopathic treatment? It is thus however that allopathic authorities declaim against the hated system. They launch their beliefs without putting forth the grounds of those beliefs; and they confess, and are not ashamed to confess, that they believe so or so, though they have not a tittle of evidence to support them in their conjectures.—Ed.

of recoveries from calomel with stimulants has not been unpromising, yet as I have premised, I would wait before I recommend it to others. I have given it up to 200 grains, but never has any salivation occurred in consequence. In their convalescence after calomel-treatment, which is always slow and prolonged, the patients complain of a pain in the abdomen, and in one case out of 8 there was dysentery. In another there was swelling of the parotids which subsided by poulticing. Calomel given in small or large doses has one beneficial effect in the 2nd stage, that of preventing early symptoms of uræmia and sometimes warding it off altogether. In all the cases that proved fatal, 1 out of 9 died of uræmia, and even then with calomel, cantharides and moist cupping I succeeded, when apparently too late, to excite full secretion of the kidneys. Most of my patients succumbed under exhaustion, and 2 of them died after lingering for 7 or 8 days with sloughing bed sores. When there is intractable vomiting and no medicine is retained in the stomach, full doses of calomel will check the irritability and allow you time to push other remedies as you require. In two cases when all the remedies failed and the patients were advanced to the stage of deadly collapse, calomel acted like a charm.

In the stage of reaction, stimulants should be entirely withheld or sparingly given, and diuretics and nourishment form the staple treatment. Among diuretics I consider tincture of cantharides as the best, conjoined with sweet spirits of nitre. Uræmia under this plan of treatment does rarely occur; for calomel, by keeping up the hepatic and intestinal secretions, unload the blood of its impure constituents and retard for a time the advent of uræmia, the intensity of which, be it remembered, is in inverse ratio to the continuance of intestinal flux. As adjuvants to diuretics, counter-irritation to the loins, dry or moist cupping and hip-bath should deserve a prominent note. The treatment of cholera in the declining period should be careful nursing and expectancy.

REVIEW.

On Tincture-making:—Read before the Homœopathic Pharmaceutical Society, February 16th, 1869, by Frederick Ross.

PERHAPS *the* most startling point in homœopathic pharmacy is the solution, in water and alcohol, of substances ordinarily imagined and believed to be insoluble in those fluids. The action of infinitesimals upon the human organism might be admitted, provided the remedy does exist in the vehicle with which it is exhibited. But it seems to transcend human imagination even to form an idea of how substances ordinarily known to be insoluble in water or in alcohol can be dissolved in these menstrua? What in the name of common sense, do the globulists mean by *tincture* of gold, of charcoal, of sand?—is a question often asked by those who would not dive deeply into any subject, but would make common sense, uneducated, unenlightened common sense, the standard of judgment and authority in matters which could only have been discovered by a most patient and laborious application of the scientific method.

We have always thought Hahnemann's greatest discovery was the discovery of the infinitesimal posology. This has a two-fold aspect, a simply physical and a therapeutical. It has not only rendered an immense service to the healing art, but has given us a definite idea of the indefinite divisibility of matter. Dr. Granier has well observed, though pronounced to have uttered nothing but arrant nonsense, "that placed upon the limits of fluidic dynamism, our observation might cast a scrutinizing glance upon the unseen world."

The practical answer to the question, and which ought also to be the most satisfactory answer, is the appeal to facts of the efficacy of those tinctures in the cure of disease. The tincture of gold, whatever it may be, does cure certain affections, which the tincture of no other substance will cure, and so for the tincture of charcoal, of sand, &c. But the pretenders to scientific knowledge *will* not look to the facts which establish the efficacy, and as a matter of course, the reality of the tinctures in question. In the interests of humanity, if not of science, it is necessary

that a satisfactory physical explanation be offered of the possibility and the actuality of the solution of substances in water and alcohol which in their ordinary state are insoluble in them.

In the very sensibly-written pamphlet before us by Mr. Fred. Ross, President of the Homœopathic Pharmaceutical Society of Great Britain, an attempt at such an explanation has been made, and we believe with great success, as may be judged from the following quotation :—

It has become a common thing to be asked for Tr. Platinum, Stannum, and Aurum Metallicum, in the 3rd Tincture ; and Globules and Pilules medicated with these substances are also asked for, and supplied by Homœopathic Chemists of this strength. In order to get these preparations, we must, to make one ounce of such Tincture, take ten grains of the 3rd decimal Trituration, dissolve it in ninety grains of distilled water, to get No. 2. Dissolve did I say? Who ever dissolved ten grains of Graphites, 3x, or Sepia, 3x, or Hydrarg. Biniodatus, 3x, in ninety grains of distilled water? The thing is impossible : and if you manage to get the substance suspended, the first addition of Alcohol will make sad havoc with your product ; and when examined with the microscope, you will at once be convinced of the utter folly of supplying an Attenuation No. 3 thus obtained. Again, if we take five grains of Trituration No. 1, place it in a glass mortar, add one or two drops of pure Glycerine, rub well for a few minutes, and dissolve in half an ounce of distilled water, and add half an ounce of rectified spirit, you have Tincture No. 3, a great improvement upon that obtained from the 3x Trituration. Here, again, if you examine your product with a microscope—nay, even without one—you will find that all the minute particles of the metal have been thrown out. In short, you cannot get a really good Tincture from these metallic substances without complying strictly with the rules laid down by Hahnemann, which gives us a Tincture not lower than No. 5. I have been told by persons who ought to know better, that they do not believe in your 5th, 6th, 12th, or 30th Tinctures. Be it so : every man has a right to his own opinion upon these matters ; but we, as Homœopathic Chemists, ought to be able to rebut these flippant utterances, and, as we otherwise believe, ought to be able to give a reason for the belief that is in us. Hahnemann made a great step in advance when he propounded the administration of medicines in a state of complete isolation, and ignored all compounds except such as were *organic* : but he made a far greater stride when he propounded his dynamic theory ; only he was unfortunate in the choice of the term by which he designated his discovery. It is of the first importance to obtain a Tincture which is a true representative of the plant from which it is derived ; that is to say, holds all the medicinal substances in such a form as to have overcome the laws of attraction and cohesion ; and in this respect a good Tincture and a good Trituration are identical ; and the successive stages through which a Tincture or Trituration is passed, is

nothing more than to increase the diffusive powers of the substance; and the high Attenuations are simply medicines with high powers of diffusion, and the low are medicines with low powers of diffusion. Our Tinctures of Mercury and Aconite are nothing more nor less than Mercurialised Alcohol and Aconitised Alcohol, possessing high or low diffusive power, according to circumstances. The solvent becomes a disintegrator, and acts very much in the same manner as heat upon a solid metal; which first softens, then liquifies, and ultimately reduces it to the gaseous condition. Gaseous bodies (at least some of them) can now be condensed, under pressure. The vegetable organism acts as a condenser, and stores up or collects from the air, water, &c., by which it is surrounded, certain subtle forces for which it has an elective affinity, and condenses them within itself. The Pharmacist takes these condensed products away from the vegetable organism by means of a suitable solvent, and reduces them back again to their ultimate molecules by successive Attenuations: in this state they are, by the wise physician, presented to the diseased organism, which has an elective affinity for the products thus presented according to the law of *similia*—greedily seizes or appropriates them, and thus restores the equilibrium which was disturbed by the invasion of some morbific agent, or by the withdrawal of some of those constituent elements of the human body, the totality of which constitutes health; the diminution or withdrawal of which constitutes disease. If the terms High, Medium, and Low diffusive power were applied to our preparations, it would, it seems to me, be much more intelligible and scientific than those generally adopted.

The author very justly denounces the present practice of making tinctures, with the 3rd decimal trituration, of such substance as platinum, stannum, aurum, &c. Hahnemann was more right in making such tinctures from the 3rd centesimal which is equivalent to the 6th decimal. In our opinion we think it wrong to make a certain particular trituration, such as the 3rd decimal or even the 3rd centesimal, the basis of tinctures of substances insoluble in their crude state in both alcohol and water. We have found by experience that the 3rd decimal trituration of sulphur is quite competent to give us a good, reliable tincture; whereas we have been invariably disappointed with the tinctures of aurum prepared after this fashion. For each substance, therefore, there is a limit of trituration within which it is impossible to get a good, reliable tincture, and beyond which it is not necessary to proceed. In the present state of knowledge we can only have recourse to experience to decide this point. In future we may get such an insight into the physical constitution of bodies that we may be at once able to say how far we shall have to proceed with the triturating process, and no further.

Mr. Ross thinks, as we once thought, and as subsequent experience seems to prove, Hahnemann was unfortunate in the choice of the term by which he designated his discovery of infinitesimal posology. While we are willing to admit that the use of the terms potency and dynamization was unfortunate in connection with the subject, we cannot altogether censure Hahnemann for being illogical or unphilosophical. He never maintained that absolutely any new powers are developed by trituration or succussion, powers other than those possessed by the crude drug. Whatever powers, abstractedly considered, were actually possessed by the drug in its crude stage, could only belong to it, in its triturated state, by virtue of its atoms possessing one and all of those powers. But for these powers to be called forth in relation to the economy, in relation to their tissues and organs of which it is composed, in relation to the minutest component parts, it is necessary that the particles should come in actual contact with the tissues and organs,—with their minutest component parts, or with the nerves by which they are controlled. And how can this be brought about most effectively except by the process of subdivision? The drug in its crude state is either not at all absorbed or only partially absorbed into the system, and consequently will either have no action, or only a partial action upon it. In its subdivided or attenuated state, it will exert all the powers it is capable of upon the economy.

However unfortunate we may now deem the language used by Hahnemann, we can scarcely conceive how he could have helped or avoided it. We should judge him by the standard of knowledge of his time, and not by that we now possess. We are ready to admit that the terms, low, medium, and high diffusive power, as suggested by Mr. Ross, are truly significant of the states to which drugs are reduced by the processes of trituration and succussion, in other word by friction; but the application of these terms does not appear to be easy enough. Who shall decide, where the low diffusive power ends and the medium begins, and the medium ends and the high begins? Even if this were done it would not help us in designating the *degree* of the state of subdivision of drugs at all. For convenience of reference we must have some designation for them, and if we do like the term potency we may use the term dilution or attenuation.

Mr. Ross's pamphlet contains other matters of interest to the homœopathic pharmaceutist, and what is most praiseworthy, is pervaded by a spirit of liberality. He gives preference to the mode of preparing Succi as given by the British Pharmacopœia, and though he had no experience with these preparations he "can quite believe that they would be much superior to those as prepared according to the directions given in Jahr and Grüner's *Pharmacopœia.*" He thinks that the tinctures of Aconite and Belladonna, if prepared from the carefully dried plants, would be superior in every respect to those prepared from the fresh plants as now directed in the Homœopathic Pharmacopœia. Small as the pamphlet is, it is both useful and suggestive, and we would commend it and specially its spirit to every Homœopathic Chemist who would not lag behind his allopathic brethren in scientific knowledge and accuracy.

Gleanings from Contemporary Literature.

ON THE TEACHING OF NATURAL SCIENCE IN SCHOOLS.

By Edwin Lankester, M. D., F. R. S.

Although amongst educated men there is a generally accepted opinion that the teaching of one or more branches of natural science ought to be introduced into schools, there is still much indifference on the subject in the public mind, and no definite view of the nature and extent to be given to such teaching anywhere. Any one looking at the character of the human mind, and the accumulated knowledge resulting from its activity, must feel that the attempt to educate the human being without supplying some knowledge of the great facts of natural science is a one-sided proceeding. It is clear that, without a definite knowledge of facts, the art of being able to *talk* and *write* about them, or to *number* them, is of comparatively little importance. So obviously is this the case, that at first sight it is a matter of wonder that the teaching of the facts of natural science has not been more largely introduced into schools. The difficulty of introducing natural science into schools is of two kinds. In the first place, our school system has grown up from a period when there was little or no natural science to teach commencing at a time when all knowledge was locked up in the languages of Greece and Rome, and precise science was confined to mathematics, those branches of culture have been universally introduced into all our high schools. Under these circumstances, the teaching of the classics and mathematics has become a kind of institution around which the feelings of those who have been educated under their influence have clung as around a political system whose existence is regarded as the palladium of the State. Propose to add anything or take away anything from this system, and you are immediately met with the demand to look at the long list of statesmen, warriors, scholars, and divines who have attained distinction under its influence. It is vain to reply that these worthies might have attained more distinction had they known more of natural science, or that probably their distinction was entirely independent of their knowledge of Latin, Greek, and mathematics. It is this feeling which meets us in the Universities and higher schools, and the unhappy tendency of the middle class to produce a miserable copy of this teaching brings down the sentimental objection to teaching natural science into the lower ranks. The only way in which this opposition can be overcome is by attacking the Universities. It is here that the natural sciences meet with their first rebuff. A very small proportion of the vast funds appropriated for education at Oxford and Cambridge are given to those who pursue natural science; and, although public opinion has forced both our Universities to be more favourable to the students of the natural sciences, it is very

questionable whether anything short of legislative interference will induce the University authorities to get out of the groove in which they have run for centuries.

There are, however, schools which are not dependent upon the example of our Universities. There are the National Schools of England and Ireland, the British and Foreign Schools, and Girl's Schools everywhere. In these schools they do not pretend to teach Latin or Greek, why it is difficult to understand; for if the study of the classical languages is of the value in training the mind that the advocates of their teaching assert, then the minds of all those who are not taught them must suffer, and thereby a great loss is incurred by the community. But let this pass. Some people believe in a male mind and a female mind, and other subdivisions of mind; so that what is strengthening and elevating to one class of mind is weakening and depressing to another. Thus our schools, as a whole, present an immense variety of subjects to be taught, but all agree in the exclusion of natural science. The real reason, however, why natural science is not introduced into the latter class of schools is no sentimental love of the subjects they teach, but the difficulty of teaching facts. Natural science cannot be taught by books; and the whole system of schooling, except in girl's schools where they teach sewing and music, is carried on by the agency of books. To teach the natural sciences, recourse must be had to *things*; books are of little or no use. Physics and chemistry must be taught by experiments; mineralogy and geology must be taught by specimens of minerals and rocks; botany and zoology by plants and animals. Neither teachers nor parents are prepared for this invasion, and the consequence is that little or no natural science is taught, even where the bugbear of Latin and Greek does not exist to frighten it away.

At the same time, whilst these difficulties exist with regard to teaching natural science in our schools, the study of natural phenomena has gone on during the last century with increasing rapidity. The Universities of the continent of Europe have in almost every instance acknowledged the position of natural science. In France and in Germany this has been remarkably the case; and in the latter country so great has been the progress, that she fairly ranks intellectually as first amongst the nations of the world. In England the necessity of natural knowledge for the exercise of certain professions, as that of the medical man and the engineer, has caused the foundation of schools from which have proceeded men who have cultivated the natural sciences with great success. We are not, therefore, without some practical knowledge of the beneficial effects produced by their study. That it may be safely introduced into our schools without injuring other studies is obvious from the fact that, when some branch of natural science has been taught in a school, the boys have been found not to have suffered in their knowledge of Latin and Greek. The result of a limited experiment at Rugby has been "that the school, as a whole, is the better for it, and that the scholarship is not worse." It is also found by the examiners in classics at the University of London and the Colleges of Physicians and

Surgeons, that the point of excellence attained by the medical student who has to study natural science is not lower than that of general students who do not study natural science at all. If this be true, then it shows us that our present system confers less benefit than if the whole of our scholars were compelled to study the natural sciences. This is also the experience of Germany, where the extensive study of natural science does not deprive her of classical students who may challenge the rest of the world for accurate criticism and profound scholarship.

Another reason for introducing natural science into our schools is seen in the fact that some boys have an innate aptitude for acquiring the facts of natural science, whilst they dislike or are entirely unfitted for classics and even mathematics. In this way the employment of scientific facts generally throughout the schools of the kingdom would assuredly be the means of raising up men who would devote themselves to this subject, and enrich the world with new discoveries and new applications of scientific principles.

We may say, however, that whatever may be the bent of a lad's genius towards classics and mathematics, a knowledge of the principles of scientific inquiry would go far to correct the acknowledged defects of such education. The observation of individual facts, the arranging them in laws, and reasoning from the known to the unknown, involved in the inductive and deductive processes employed by the natural philosopher, could not fail to provide a discipline of benefit to the scholar as well as the mathematician.

Another advantage of the cultivation of these sciences is, that it places the individual who studies them more closely in contact with the thought and experience of the age in which he lives. All the great activity of life depends much more on the progress of the natural sciences than the culture either of classical or mathematical knowledge; and a man in almost every position of life is placed more or less at a practical disadvantage who is not acquainted with the principles of scientific discoveries. Who is there with a knowledge of natural science that has not been grieved to hear an eloquent discourse marred by ignorance of the laws that govern the simplest natural phenomena! Who that has been examined before a Committee of the Houses of Lords or Commons, has not wondered at the ignorance displayed by our legislators of the commonest facts known to the scientific man! Again, how many of our scientific witnesses bring away from our courts of criminal justice impressions of the thoroughly false estimate that advocates, jury, and Judges take of the simplest natural facts brought before them!

Another reason why the principles of natural science ought to be universally taught, is the fact that the daily health and life of mankind depend upon their obedience to the laws that govern the external world in which they are placed. The human body is so constructed that no one can understand the nature of the laws by which it exists without deriving benefit therefrom. A slight knowledge of the nature of the atmosphere in which we live, of the properties of heat, of the composition of materials about us,

may frequently be the means of saving life. In every occupation in which the human being can be employed, he must act in accordance with laws which have been discovered and understood by others, and every one must be directly benefited by possessing such knowledge. To leave such a precious possession as this to the mere accident of a man finding out its value in after-life, is to play with the mercies of Providence, and to merit the punishment that attends the infraction of Divine laws.

In the last place, we may speak of the high intellectual pleasure afforded by that special exercise of the mind which attends the pursuit of natural science. There is, no doubt, pleasure afforded in poring over the beauties of ancient poets, and satisfaction given in the perfectly accurate results that follow the solution of mathematical problems; but we question if the gratification in either case is so great as that of contemplating the truths of physics, of chemistry, or of life. Especially are these studies ennobling in the highest degree when they are pursued with the feeling that all the great facts and phenomena of the universe are revealing the mind of God to man. The mind of the human being who has not studied the great laws by which God is governing and up-holding the natural world, cannot be so capable of understanding the questions of man's responsibility and relation to God as he whose mind has, in the feeblest way, been led to contemplate God's nature in his works.

But supposing the point settled of the desirableness of introducing the study of natural knowledge into our schools, to what extent ought we to teach it, how ought it to be taught, and where are the teachers to come from?

With regard to the first question, a distinction ought to be made in the beginning as to the object of teaching the natural sciences at all. On the one hand, we may teach one branch or all these sciences for the sake of imparting desirable knowledge to the mind; or, on the other hand, we may use them with the object of training and strengthening the mind for action in the pursuit, generally, of the facts of the external world. It would not be impossible, we think, consistently with the time boys spend at our higher schools, to carry them through the chief branches of natural science in the course of their studies; and especially could this be done if the teachers were themselves skilled in science generally, and understood the relation of one subject to another. Unfortunately, the way in which science is pursued in England affords little chance at present of our seeing a body of skilled teachers who, whilst they could take a class successfully through one branch of subjects, should understand their relation and bearing to another class of subjects. The only profession that could supply this class of men is the medical; but then the man thus educated and fitted for teaching, would make a much handsomer income by the practice of medicine than anything he could get by teaching science in schools. At the same time, it might be worth the while of some of our better schools to tempt men thus educated, by better salaries than are given to ordinary school teachers, to enter upon such a course of instruction.

By commencing the teaching with boys ten or eleven years old, they might be carried through the elements of all the natural sciences in a scheme like the following :—

First year : Experimental physics, embracing the laws of sound, heat, light, electricity, and the elements of mechanics.

Second year : Chemistry, embracing more especially the metallic elements, and a knowledge of the forms and composition of minerals.

Third year : The chemistry of the organic elements, and the consideration of those compounds which enter into the constitution of plants and animals.

Fourth year : The structure and physiology of plants, with the principles of systematic botany.

Fifth year : Comparative anatomy, and the general principles of zoology, and the physiology of the lower animals.

Sixth year : Human physiology, and anthropology.

This course of study might easily be varied, according to the judgment of the teacher ; and the organic sciences might even be introduced from the commencement.

Such a plan as this could only be pursued with able instructors, and when ample time is given to acquire the knowledge imparted. It would be quite impossible to carry it out where only two or three hours a week are given to natural sciences. Five or six hours a week, for eight or nine months in the year, would be the least that would be required for such a course as the above.

This is one of the greatest difficulties connected with the working of natural science classes in schools, that none of the old masters are prepared to afford a sufficient amount of time for anything like giving a satisfactory amount of instruction. The writer once asked the master of a large school if his pupils were taught natural science, to which he answered, O yes ! we teach all the natural sciences. "In what way?" it was asked, and the answer was, that an occasional course of lectures was delivered by distinguished professors from the neighbouring city. This gentleman would have been greatly surprised if a schoolmaster teaching the natural sciences were to propose to teach Latin and Greek by occasional courses of lectures. This is a fundamental error, if possible to be got rid of from the minds of men educated in classics and mathematics. They all regard natural science as an *amusement*, as something to be encouraged by way of relaxation in leisure hours, but never as the serious business of life. Until this notion is thoroughly eradicated from the minds of our teachers, little or no progress will be made in the teaching of natural sciences.

But suppose we have only two or three hours a week to give to this kind of teaching, the question comes, What is the best use that can be made of them? Provided a competent teacher can be found, we have little doubt as to what subjects would be found most useful and advantageous. When the object is to give the mind a training in the principles of inductive science, there is no branch of knowledge more fit for this purpose than chemistry. The facts which it comprises are most varied, whilst their

combination and arrangement admit of almost mathematical accuracy. The processes of observation and reasoning are called forth, whilst the experiments which must necessarily be performed excite the interest of the pupil to the highest degree. The facts when acquired are of the utmost practical utility. They lie at the foundation of most of the practical arts of life, and are the foundation of the higher sciences of vegetable and animal physiology. At the same time, care must be taken to place this science on its right footing. The pupils themselves should be made to perform the experiments. To teach chemistry by mere lectures with experiments is a defective method. To teach it by books without experiments is worse than useless.

There is another subject so daily useful, so important, that although not to be placed by the side of chemistry as a training science, it nevertheless demands the earliest attention, and that is human physiology. The information conveyed in this branch of knowledge is so individually valuable, that we think it might be successfully shown that no advantage obtained by any other kind of knowledge is so directly beneficial to mankind. It may no doubt be objected that physiology presents some of the most difficult problems that can be mastered by the human mind, and that as it is the last science that we have recommended to be taught in schools, under no circumstances ought it to be the first. It is no doubt true that it is better, where time can be given to the inorganic sciences, that they should precede physiology; but when it becomes a question about which of the sciences it is most beneficial to know something, then we have no hesitation in placing human physiology first. Nor is the science so difficult to teach as its complex problems would lead philosophers to think. Every pupil has in his own body the means of performing experiments, and can watch the functions which it is the province of physiology to teach. It is not proposed to teach physiology on account of its satisfactorily developing mental processes but no account of its principal facts being necessary to be known in order to preserve health and save life. The great bulk of even educated people have little idea of the immense destruction of life that takes place every year through our ignorance of the most ordinary laws that regulate human life. The rudiments of physiology could not be taught in nine-tenths of the schools of Great Britain without rebuking the disregard paid to its laws in the ventilation of rooms, the distribution of the hours of study and relaxation, the conduct of exercises, and a hundred other points connected with health. The homes of the poor and middle classes of this country are the constant sources of disease and death, not because of poverty or injudicious economy, but from sheer ignorance of the simplest laws by which God provides for the health and life of his creatures. The whole country is full of mourning for those who are stricken down with fevers and other contagious diseases, with scrofula and consumption, yet it can be demonstrated that the larger proportion of these diseases could be prevented by a knowledge of the preventible causes of disease and death. To defer teaching this subject till it can be taught at some distant time after school-days

are over, is to forego one of the greatest advantages that can be conferred in teaching the natural sciences at all. This subject is seldom taught, and to no class completely except to the medical profession; and although they have done nobly in urging upon the public mind the necessity of sanitary legislation arising out of their physiological studies, there is no public opinion to sustain sanitary law. Our legislators, our clergymen, our judges, our vestrymen, our electors, our people, are alike ignorant of the structure and functions of bodies they live in, and disease and death stalk through the land from year to year with undiminished strides. The great hope of the sanitary reformer lies in the introduction into schools of the teaching such an amount of physiological knowledge as would form a public opinion that would second the efforts of the Legislature to secure for the people of England houses and homes free from the easily preventible causes of disease and death.

But, dwelling on this subject for a little, let us suppose that no effort is made in a school to introduce natural science as a means of training the intellect of the scholar; has not physiology a higher claim to attention than most of the subjects introduced into reading lessons? The favourite subjects for such exercises are history, geography, and natural history. Such reading is extensively introduced into our lower schools. Everybody is agreed that children must read about something; and if this is the case, why should they not read about the structure of their own bodies and the functions on which their life depends? Surely it would be as well that the time for reading should be occupied in an account of Harvey's discovery of the circulation of the blood or Jenner's more important discovery of the prevention of small-pox by vaccination, as on the invasion of Britain by Cæsar or the discovery of America by Columbus. Even the inveterate prejudice of those who think that nothing can be taught without the aid of books might be thus accommodated, and books on Physiology pointed out that might be read in schools, whether boys or girls are taught in these schools.

From what we have said, it will be seen how difficult it is to introduce the subject of natural science at all into schools. Where an individual teacher sees the importance of the subject it can always be introduced, but where there is indifference on the part of the teacher there is no pressure from without. We may say confidently that with regard to the success of any school, from a dame's school to an upper school or a University, it is a matter of perfect indifference to parents whether they teach natural knowledge or not. Hence we are driven to seek some power external to our whole scholastic system. There is no doubt our Universities possess this power. In a Report recently published by the House of Commons* it is stated that, "although no more than 35 per cent. even of the boys at our

* Report of a Committee appointed by the Council of the British Association for the Advancement of Science to consider the best means for promoting Scientific Education in Schools. 1868.

great public schools proceed to the University, and at the majority of schools a still smaller proportion, yet the curriculum of a public school course is almost exclusively prepared with reference to the requirements of the Universities and the rewards for proficiency that they offer." If this be the fact, it is then obvious that our Universities are really obstructive of the increasing intelligence of the age; and however much they are cultivating the "sweetness" of our youth, they cannot be said to increase their "light." This obstructive influence is felt not only in the higher schools, but in all educational establishments where English is spoken. The one great drawback to teaching natural science in the colleges of the United States of America is the example of the English Universities. Recently, in one of the largest Dissenting colleges in England the most feasible way of reducing the expenditure of the institution was in diminishing the modicum of teaching that had previously been attempted in natural science. The late principal of the Liverpool Collegiate Institute, when desirous of introducing natural science teaching into the school, was plainly told by the merchants of Liverpool that they only wished him to teach those branches of knowledge to their sons by which he had gained his own eminence. It seems very clear then that one great object to be kept in view in introducing natural science into education is to change the policy of those who rule in our Universities.

At the same time there are some cheering signs of movement both in our English Universities and in our public schools At Oxford, Christchurch has opened a very complete chemical laboratory. Although there is little teaching of natural science in the colleges, Christchurch gives annually a Junior studentship, Magdalen College a demy-ship, and Merton College a post-mastership for these subjects. There is also a scholarship founded by Miss Brackenbury at Balliol College for natural science; and another lady, Miss Burdett Coutts, has founded a geological scholarship for University graduates. There is also the Radcliffe travelling fellowship given to candidates who, having taken a first-class in natural science, are preparing for the practice of the medical profession. At Christchurch also there are two Lee's readerships in natural science, and recently fellowships have been given at Merton, Queen's, and Pembroke, for the same subject.

At Cambridge there is a natural science tripos, but little encouragement is afforded by the colleges for its study. There are scholarships at King's, Caius, Sidney-Sussex, St. John's, and Downing. The latter college has recently given a fellowship for natural science, and Trinity College has appointed a lecturer on the same subject. At St. John's there is a chemical lecture and laboratory. In reference to Cambridge, the report above referred to says, "At present public opinion in the University does not reckon scientific distinction as on a par with mathematical or classical; hence the progress of the subject seems enclosed in this inevitable circle,—the ablest men do not study natural science because no rewards are given to it, and no rewards are given for it because the ablest men do not study it." The great question for the consideration of the people of England to whom these Universities belong, is, How is this vicious circle to be broken? In

Cambridge there are also lectures on various branches of natural science adapted to a medical education.

The London University requires a certain amount of elementary knowledge of natural science in its matriculation examinations, which is classed under the heads of mechanics, hydrostatics, hydraulics, pneumatics, acoustics, optics, and chemistry. At the examination for B. A., a further knowledge of astronomy and animal physiology is required. The London University also gives degrees in science, and there is a B. Sc. degree, and two years after a D. Sc. is granted.

The College of Preceptors gives an honorary fellowship, for which one branch of science, either chemistry, natural history, or physiology, is required.

The Agricultural College at Cirencester has fifty pupils, who are engaged entirely in the study of natural science. There are professorships of geology, botany, chemistry, agriculture, and physics.

Amongst our high schools a beginning to teach natural science has taken place. At Rugby there are lectures on mechanics, geology, and botany, and these form part of the regular school course. A Natural History Society has also been established at Rugby, to which the senior scholars are permitted to belong, the Transactions of which are before us, containing reports of papers and meetings held during the year 1868.

Natural science is encouraged at Harrow by examination, to which all the boys are invited, and they are placed according to their merits. There is no systematic teaching, but many of the boys make great attainments in science, and some of them have already distinguished themselves in the scientific world. There is also a Scientific Society at Harrow, which meets at fixed periods under the presidency of one of the masters. A museum has been formed, and the masters speak highly of its beneficial influence in the training of the boys. At the International College at Spring Grove, the natural sciences are made a part of the general training of the boys. Competent masters have been appointed to teach these branches of science, and Dr. Schmitz, the intelligent head-master of the school, speaks very confidently of the success of the plan.

Intermittent attempts have been made to teach natural science in various other schools throughout the kingdom, but the want of determination in the masters and encouragement on the part of parents very often lead to the entire abandonment of any sustained efforts to proceed in this course. There seems little doubt that if young men of scientific tastes would fit themselves to become teachers in schools without applying themselves to the practice of some profession, they would find ample employment for their ability in tuition. They must, however, be prepared to insist on their own terms, and times and methods of teaching, as the condition of mind of the majority of those who undertake to teach the young, whether male or female, is utterly blank as to the nature, value, or methods of teaching any branch of natural knowledge.—*Quarterly Journal of Science*, July, 1869.

We have to tender our best thanks to the Editors of the following Periodicals for regularly exchanging with us :—

The Indian Medical Gazette.

The British Journal of Homœopathy (Henry Turner & Co., London.)

The Monthly Homœopathic Review (Henry Turner & Co., London.)

The United States Medical and Surgical Journal.

The American Homœopathic Observer.

The Western Homœopathic Observer.

The "Homœopathic Sun."

The American Homœopathist.

The Indo-European Correspondence.

The Hindoo Patriot.

The Bengalee.

The Indian Mirror.

The Well Wisher.

The National Paper.

The Dacca News.

We shall be glad to exchange with any Medical Periodical in the world.

Books, &c., for review, to be sent, carriage paid, to the Editor, direct.

CALCUTTA PUBLIC LIBRARY 1877

THE

CALCUTTA JOURNAL

OF

MEDICINE.

VOL. II.] **Sept. & Oct., 1869.** [NOS. 9 & 10.

UNTIMELY CREMATION AND UNTIMELY BURIAL; OR THE DISPOSAL OF THE LIVING AS DEAD.

WE have extracted under our *Gleanings* a most important article on 'Apparent Death' that appeared in one of the numbers of *All the Year Round* for July last. The subject is not a new one; it has been from time to time arresting the attention of mankind from the remotest ages; and the wonder is that it has hitherto failed to command that degree of it which is necessary to lead to a satisfactory conclusion. It is only when a case happens of revival after the usual ceremonies have been performed or at least after the final verdict of actual death has been passed that those interested, and but a few philosophers or philanthropists besides, are startled for the time being into the conviction of the terrible significance of the subject of apparent death. The feelings however soon subside and the subject is buried in oblivion again, no decisive steps being taken to prevent the recurrence of the awful mistake of numbering the living with the dead.

It may be asked, if we are so anxious and so fond of preserving the memories of our relations by portraits and statues, why do

we dispose of the dead at all? We do so under the impulse of stern necessity, dictated by sanitary, no less than by æsthetic and economic considerations. Death not only produces serious disfigurement of the person, but works such radical changes in the body as to render it exceedingly obnoxious to the health of the living. But even assuming that no decomposition had ensued and that the form had remained intact after death, even then the preservation of the dead would have been far from desirable. Nay, it would be absolutely impossible. Where would we find place for them? Their number would fast multiply and would, in a short time, leave no place for the living. We remove the dead them because of their affecting our health, our tastes, and our comforts, not to say our purse; in other words, because of their interfering with the living. Or in other words, it is pure self-love which overpowers our affections and drives us to the painful necessity of separating for ever from those who were dear and near to us. And it is that self-love again which dictates that we must not confound the living with the dead.

Nothing appears so easy to the popular mind as to be able to distinguish between life and death; the characters of the one state being supposed to be diametrically opposite to those of the other, and being such as to require no great scientific training to understand them. Stoppage of the circulation and respiration are looked upon as indicating death; and physiologically it would seem that if the stoppage of these two functions were complete and absolute, life could be pronounced to be extinct. But indisputable recent facts have led us to considerably modify our physiology. Even assuming that the absolute cessation of the circulatory and respiratory functions are incompatible with life, the problem still remains far from easy of solution, viz.—What is the minimum amount of these functions compatible with vitality, and is it possible to distinguish between this minimum and the zero of the functions? The fatal blunders, that have been committed by even experienced medical men, regarding the extinction of life as judged by this test, show the difficulty of applying the test, and therefore point to the necessity of extreme caution in hazarding an opinion on the subject.

Physiologists make a distinction between *systemic*, or as it has been more appropriately called by Dr. Prichard *somatic*, and

molecular, death. Molecular death is partial, somatic death is death of the whole body. Molecular death has been described as death of the elementary component parts or ultimate tissues of the body; systemic death as death of those organs upon whose functional activity the life of each and all the ultimate tissues depend, such as the heart, the lungs, the medulla oblongata. This distinction does not appear to us to be quite logical. If does not seem to be based upon a correct appreciation of fact. What has been called systemic or somatic death is but the molecular death of the most vital organs. These organs cease to act only because of some molecular change, gradual or sudden, in their tissues incompatible with a due performance of their functions. So that it is molecular death which is at the bottom of all true death. In other words, molecular death proves general or partial, involves the whole body or a part of it, according to its seat.

We have not as yet defined what death is. To define it simply as the cessation or suspension of all the vital actions will not be correct, inasmuch as such a definition will include that state of latent or dormant vitality, very often observed in plants, not unfrequently in the lower orders of animals, and sometimes though very rarely in human beings, which, though there is no *manifestation* of life in it, cannot be called death, inasmuch as it may be conditioned into that manifestation. We define death, therefore, to be that condition of the organism, in which the functions of each and all its parts have not only absolutely ceased, but cannot by any physical means be restored. We have no right to pronounce a human being dead and therefore necessary to be so removed or transformed for fear of his affecting the living, as to destroy all possible chances of his restoration to life, so long as we are not satisfied of this absolute and total extinction of life. It is disregard of this principle, suggested alike by the higher and lower instincts of our nature, by benevolence and justice, as well as by self-love, which has hurried numberless fellow-human beings to premature death. It is disregard of this principle which, for aught we know, has robbed, and unless checked, may yet rob, humanity of a portion of its honor and glory.

Are there any positive signs by which death can be unmistakably known? We have seen above that the stoppage of the move-

ments of the heart and lungs is not only not an infallible index of death, but even if it were, cannot be taken as a safe guide, in as much as the minimum is perfectly indistinguishable from the total annihilation of the functions of those organs. Let us enumerate some of the phenomena which invariably follow death sooner or later, and let us see if by their individual or conjoint help we cannot arrive at a correct diagnosis of this most important event. Loss of animal heat, altered color of the surface, altered state of the face and especially of the eyes, the somewhat clenched condition of the hands, cadaveric rigidity, and finally putrefaction or decomposition of the tissues, are the most prominent phenomena observable after death. Let us review them *seriatim*, to ascertain their value as diagnostic signs of death.

1. *Loss of animal heat.* This sign is hardly of any value, when we remember that sometimes a large amount of heat is developed post mortem; though this is followed by coldness or diminution of the heat, which becomes permanent. Again in some stage or some form of some diseases, from which recovery is perfectly possible, and does often take place, this loss of animal heat is a characteristic symptom. Witness the collapse stage of cholera, the cold stage of intermittent fever, and some forms of hysteria.

2. *Discolorations of the skin.* These are in spots or patches of lividities, giving the skin a mottled appearance, and when closely examined will be found to follow the course of the superficial blood-vessels and even of capillary networks. They are observed at first in the depending parts, but after the lapse of sometime throughout the whole surface, and are the results of the triumph of the physical forces over the vital. The value of this sign is lessened by the fact that similar discolorations also take place in disease, as in typhus and in the desquamative stage of scarlet fever and measles; and also that they are observed to take place in the act of dying.

3. *Alterations in the countenance.* This is the most deceitful of all signs, because the countenance does not always become as it has been described by Hippocrates, but present different appearances according to the cause of the death, being full or sunk, and the eyes bright and glaring, or lustreless and shrunk. But even assuming that in death in the natural course the countenance becomes hippocratic, the eyes dim and collapsed, the temples hol-

low, the nose sharpened, the forehead dry and tense, the lips cold and livid, the complexion sallow, livid, or black, we must remember that such a state of the countenance may ensue before death has actually taken place, and sometimes, though very rarely, is seen in diseases from which recovery may and does take place. Witness the sequelæ of the adynamic fevers and of cholera.* It must also be remembered that the lividity of the countenance may change into a brighter hue resulting, as has been explained by M. Chevalier, from the action of the atmospheric oxygen upon the blood in the superficial vessels, and thus we might be deceived into the hope of yet lingering vitality.

4. *The flexed condition of the hands.* This is a peculiar appearance in which "the fingers are brought together and slightly bent, but the thumb is covered by them, being always found in the hollow of the hand directed towards the root of the little finger." This appearance is invariably seen after death, and is the result of the superior power of the flexors. Its value as a diagnostic sign was first pointed out by M. Breschet. At first resulting from vital contraction, the stamp of permanency is put upon it by cadaveric rigidity to which we now direct our attention.

5. *Cadaveric rigidity.* This is a conclusive evidence of death. It can never be mistaken for the rigidity of disease, for once forcibly destroyed, it never returns. It follows the general relaxation which takes place immediately after death, and is itself followed, in a shorter or longer time, by relaxation again. The seat of the rigor is muscle, but the cause is as yet ill-understood.

* We believe the late Prof. Casper laid too much stress upon the condition of the eye-ball as a sign of death. His words are:—"A valuable evidence of the loss of the vital turgidity is afforded by the soft or inelastic condition of the eye-ball; this is very evident in every body after from twelve to eighteen hours, and may sometimes be sooner felt. The living eye-ball, from the tension of its fluids, under all possible circumstances, even when dying, ill of cholera, or the like, gives an elastic resistance to the pressure of the finger, but by the time mentioned this has ceased, the eye-ball feels flaccid and the longer after death the more buttery it becomes, till in an early stage of putrescence it bursts and runs out." (*Forensic Medicine*: New Sydenham Society's Translation, Vol. i, p. 18). This does not tally with our experience of cholera at least. We have seen the eyeball perfectly flaccid, covered over with a nebulous haze and even sloughed out, in the stage of sequelæ of cholera, and in the last stage of adynamic fevers; and we have seen patients survive this condition hours and even a day or two.

Brücke has revived the old theory that it is due to coagulation of the fibrine in the substance of the muscles; Stannius thinks it is due to death of the nerves distributed in the muscles; whereas Kölliker believes, and he seems to be nearer the truth, that it is due to some peculiar molecular change of the muscular substance. It is certainly not the result of the last efforts of vital contraction, as Nysten used to maintain, according to whom life seems to take its final refuge in the muscles where it determines the spasm which constitutes the rigor.

6. *Putrefaction* is the last and most conclusive sign. It is nature's warning to no longer delay the disposing of the dead. She seems to take upon herself as it were the task of disposal. The body is now completely made over to the forces of the inorganic world, and it becomes the duty of the living to hasten the process for their own safety. We think M. de Parville has exaggerated the possibility of mistaking post-mortem putrefaction for gangrene, the result of disease or of injury. In gangrene, when death has not taken place, some signs of life must still remain; and if all the signs of life have departed then death may be safely pronounced to have taken place. Besides, if the order of sequence of the occurrence of post-mortem putrefaction is remembered, it will be impossible to mistake it for gangrene. Post-mortem putrefaction comes on *after* the rigor mortis and never before. With putrefaction some rigor mortis may co-exist, and this might be mistaken for tetanus co-existing with traumatic gangrene. But besides the obvious signs of life being patent in this latter condition, the rigidity of tetanus alternates with relaxations, and returns when forcibly broken through.

These then are the phenomena which follow the extinction of life. As signs of death we place the highest reliance upon the two last. The others, though individually they do not possess as much value, yet conjointly afford valuable aid in coming to a diagnosis. Keeping them all in mind it will be impossible to mistake death for life. We are of opinion, that though we need not wait till putrefaction has actually commenced, which would be dangerous in a sanitary point of view—we are strongly of opinion, we say, that no human being should be disposed of as dead, either by burial, cremation, or otherwise, so as to render his reanimation impossible, until rigor mortis has actually set in.

Particular care should be taken with reference to persons who have met their death by drowning, by suffocation, by exposure to cold, by lightning, by snake-bite, by falls, or even by cholera or fright.

With reference to M. de Parville's method, detailed in the Essay extracted under our *Gleanings*, we do not believe, assuming its infallibility, that it would be at all easy of application by those for whom it is designed, namely, the people. But the infallibility and therefore necessarily the value of the method is marred by the fact that it is perfectly inadmissible in cases where the eyes are wanting or have been destroyed, or where there was amaurosis, or some diseased condition either of the iris, or of the retina, or of the brain which had brought the pupil to an immobile condition, contracted or dilated.

A knowledge of the positive signs of death is of supreme importance in this country, or rather to the Hindus, who burn and do not bury their dead. In a sanitary point of view we must admit, cremation is the best mode of disposing of the dead; but we must also admit, and we blush to do so, that our dead are disposed of in, what we cannot but stigmatize as, indecent haste. As far as the present practice goes there does not appear to be any time fixed which must be allowed to elapse before the mortal remains are consigned to the elements. And as far as we have been able to inquire the time enjoined by the Shasters,* within which the final rites should not be performed, is too short to allow of revivification, or of verification of any suspicion that

* According to our Shasters the House of Death is 99,000 *yojanas* (1 yojana = 8 miles) distant from this world, and it takes the Messengers of Death 3 *muhurtas* (1 muhurta = 2 dandas) to convey thither the spirits of the dead. When the person to die happens to be a great sinner he is conveyed (with torments) in a shorter time, 2 *muhurtas*. The maximum time is however 3 *muhurtas*; therefore the time that must be allowed before the corpse can be burnt is double this time, namely, the time required for going to Death's House and coming back to the world; because it happens that His Messengers sometimes make mistakes, carrying persons whose time has not yet arrived. Thus the time that must elapse before the dead ought to be burnt is 6 *muhurtas*, or 12 *dandas*, or 4 hrs. 48m.; 2½ dandas being equal to an hour. It will thus be seen that the Shasters *did* recognise the fact of apparent death, though the length of time fixed by them within which revival may take place was too short. However it will be seen also that this is the minimum and not the maximum time. The Shasters do not forbid us to wait longer, should we find reason to do so.

might hang as to the way in which death might have taken place. The religious necessity of taking the dying to the banks of the holy Ganges not only hastens death by the fact of rude shakings and joltings in the way, but in not a few instances leads to untimely cremation by a singular circumstance. The persons who have to attend upon and wait with the dying at the river-bank often feel tired of waiting long when death does not come on soon, and if happening to be of easy conscience they feel too little of its compunction to wait for the setting in of all the signs of death.

The writer has heard of several authentic cases of recovery after the supposed corpses were actually prepared for cremation. In one instance, the unfortunate man was put upon the funeral pyre which was actually set fire to, but was saved by an accidental heavy shower of rain which, at the same time that it compelled those engaged in the ceremony to leave the place, put out the fire, and probably helped in revivification by a sort of rude hydropathy. The writer himself was eye-witness of a most melancholy case in the anatomical theatre of the Calcutta Medical College in February 1st, 1861. The man (a young fellow of about 24), who was supposed to have died, was brought from the Calcutta Police Hospital to the Medical College for dissection. On opening his thorax the heart was found beating, be it remembered some six hours *after* the usual injection of an arsenical solution into the Aorta. This case will be found recorded in the *Medical Times and Gazette*, March 30th, 1861, under the heading of *post*-mortem contractility! Why should we think the man was *dead?* All the instances of what is known amongst us as *danopayna* (possessed of demon) are nothing but instances of revival after apparent death, instances which generally meet with most melancholy terminations, brought about in the most ruthless manner by ignorance and prejudice. The generality of people still believe that these instances are in reality instances of possesion of the dead bodies by demons, and not instances of true revival; and they act according to this most seriously mistaken idea: they deal with the revived persons as they would with demons; they kill them with the most horrible butchery. Ought this state of things to continue? Ought we to take no notice of such atrocious cruelties?

There is no law in this country as to the length of time within which the dead should not be finally disposed of, buried or burnt or otherwise consigned to the elements. But it seems to be absolutely necessary that the Legislature should move in the matter. We are fully aware how laws of this nature are likely to prove troublesome, if not oppressive, and how they might even interfere with sanitation. But difficulties are nothing, and all considerations must yield, in the presence of the terrific fact that numbers are being daily hurried to premature death for want of proper attention to the subject, numbers who might with attention and care be made to live again. But even if restoration were impossible and death inevitable in a short time, what right have we to rob a man of even that short time of his existence, be it an hour or a minute? What right have we to bury or burn or dissect human beings alive? Why should we take upon ourselves the responsibility of supposing that mighty Nature is unable to mend herself, revert her processes, and come back to her normal condition in even a *short* time? We cannot too emphatically urge upon Government and the community at large the necessity of instituting an inquiry upon the subject to determine upon the best mode of preventing the recurrence of the mistake, shuddering to think of.

We have only to bring the mistake home to ourselves to be impressed with its vast and awful significance. No member of the Hindu community ought to think himself safe from the jaws of premature death, so long as that community remains in its present almost apathetic disposition towards the subject, so long as it is not fully awakened to its importance, so long as it deems itself absolved from all responsibility by simply obeying the shastric injunction of committing the dead to the fire after the lapse of the short time of 12 dandas or only 4 hours and 48 minutes. But we are confident there will be no difficulty in rousing the Hindu mind. Let it but be informed and it will, with its inherent benevolence, revolt even at the idea of the evil we are now complaining of, and it will be ready and only too glad to adopt any measure that may be suggested for its removal.

GOVERNMENT SANITARY COMMISSIONER ON THE HURDWAR CHOLERA EPIDEMIC OF 1867.

The fourth Annual Report of the sanitary commissioner with the Government of India, contains a large collection of very interesting information on the cholera epidemic of 1867. It was printed by the Government about a year ago, but we were not deemed worthy of being furnished with a copy, though the same was supplied, we are given to understand, to almost every newspaper in Bengal. A copy of the Report has however now come to our hand accidentally. The subject which occupies the greater portion of it is so important not only to the profession, but to the country at large, that we think it proper to take a detailed notice of it. That subject is the Hurdwar Kumbha Mela of 1867, and the cholera epidemic of that year in Northern India supposed to have been developed from the former.

The Cholera Commission of Constantinople among other things was decidedly of opinion that in India "pilgrimages are the most powerful of all causes which tend to the development and propagation of epidemics of cholera." As the gathering in the Hurdwar Fair of 1867 was expected to be very much larger than usual, early provisions were made at the station to guard against the possible outbreak of an epidemic, and in the case of an actual outbreak to try the efficacy of quarantine and of movements into camps of soldiers, in addition to the sanitary precautions which are ordinarily prescribed. Arrangements were at the same time made, in the event of such an outbreak, to collect accurate information about it, with the view of making fresh contributions to our knowledge of epidemics. Soon after the conclusion of the fair, cholera broke out in several parts of the Bengal Presidency. The Report therefore which Dr. Cunningham has prepared is a very interesting one, and it is our object in this article to test the accuracy of the conclusions he has arrived at. Dr. Cunningham evidently struggles to support a foregone conclusion, although he has not proved himself to be so partial to his former opinions as totally to set aside the facts and opinions which have been put forth from the other side. Dr. Williams, civil surgeon of Murree, for instance, "sees no reason for supposing the disease to have been imported." The information he has

supplied, as far as it is given, is similar to that furnished by several other medical officers, yet his report is characterised as "very imperfect," while in the case of some other officers who have given less satisfactory facts, but more decided opinion, in favor of importation, their Reports are stated to be simply meagre. Again, Dr. Cunningham has given in one place lists of officers and of stations, which support his view of the question, but he has left it to his opponents to prepare similar lists in support of the opposite view. Neither is Dr. Cunningham quite consistent in the opinions he has hazarded in different parts of his Report. In para. 224. speaking of cholera, he says, "it is extremely difficult, if not impossible, in the present state of our knowledge, to say with any accuracy what effect any preventive measures have had upon its progress and how far events would have been modified had no such measures been adopted." But as he proceeds on, his diffidence lessens. In para. 268, he speakes of an "early removal from the infected quarter as the best preventive measure yet known for arresting the spread of the disease," and in para. 273, he states that "although particulars of all the movements have not been given, the favorable results in every case are in themselves the best evidence that the procedure was attended with success."

In examining the legitimacy of the conclusions arrived at by Dr. Cunningham, it is necessary to begin with a short account of Hurdwar and of the fair, before the dispersion of the pilgrims. The following is a description of the town given in the Report :—

Hurdwar, or more properly "Haridwara," the gate of Vishnu, is an inconsiderable Native town in the district of Saharunpore, and distant about 40 miles due east of that station, in Lat. 26° 57′ N. Long. 78° 14′ E. according to Thornton. It is situated on the southern slope of the Siwalik Range, at the mouth of the gorge through which the Ganges escapes from its cradle in the Himalaya to the plains of Hindustan. It is, therefore, sometimes called "Gungadwara," or the gate of the Ganges. Its elevation above the sea level is a little over 1000 feet. In former times the river at Hurdwar was divided into three channels, but since the construction of the Ganges Canal the water has been directed into two, one of which is the main stream, and on its western bank the town is situated. What was once a shallow, fordable, sluggish stream is now, therefore, a deep, broad, and rapid river, and during the rainy season becomes a rushing torrent. The water is exceedingly cold, as it is largely derived from the melting of the snow in the mountains. The valley through which the

river flows runs up in a N. E. direction, towards the foot of the main Himalayan chain, which is full 13 miles distant from Hurdwar. This valley is described as being intensely malarious, abounding in dense jungle and swamp. Even in the neighbourhood of Hurdwar itself the same condition prevails, but in a lesser degree. The surrounding country is low relatively to the bed of the river, so that the soil is very damp, and, being covered with stunted verdure, rapidly generates malaria.

"Hurdwar is therefore considered to possess a peculiar sanctity by the Hindus, and people annually flock thither in large numbers for purposes of ablution in the sacred waters." "The bathing commences in the month of *Chaitra*, when the sun is in *Mina* or *Pisces*, and concludes on the day he enters *Mesha* or *Aries*, agreeably to the solar computation of the Hindus, and corresponding with the 10th April, on which day the sun has actually advanced 20½° in that sign. Every twelfth year is celebrated with greater rejoicings, and is called the *Kumbha Mela*, so denoted from the planet *Jupiter* being then in the sign of *Aquarius*." "A pilgrimage at these duodecennial periods is considered the most fortunate and efficacious." Owing to several causes the fair of 1867 was one of unusual numerical magnitude, so much so that the number of pilgrims has been reckoned at 3,000,000. The arrangements made for the safety and proper management of so vast a crowd of people, are represented to have been very creditable. "The bathing place of the pilgrims was a space 650 feet long by about 30 feet wide *(Hurkee-Pyree Ghat)*, shut off from the rest of the bed of the River Ganges by rails, which prevented the people from getting any further out into the river than the limits of the space which was thus enclosed." "The water within this space was, during the whole time, thick and dirty, partly from the ashes of the dead, brought by surviving relatives to be deposited in the waters, and partly from the washing of the clothes and bodies of the bathers." During bath a quantity of this water capable of being contained within "the palms of the two hands, held together so as to form a cup," was drunk by every pilgrim. The sanitary arrangements of the place were good. There were hospitals and dispensaries in different places. Latrines were provided in convenient situations, and dry earth was used as a deodorizer. But the filth from the latrines was buried close to the huts of the pilgrims; besides there were furnaces at different places, for burning the filth from the latrines on

boulders. Pilgrims and shopkeepers from different directions began to arrive about the middle of March, the noon of the 12th April being "the auspicious hour and day for ablution." "The 11th of April was a sultry cloudy day, and in the afternoon a storm, accompanied by heavy rain, thunder and lightning, came up from the west. The effect of this was a sudden and marked decrease of temperature." It rained "heavily all night and drenched the whole encampment, so that most of the pilgrims were without dry clothing, and remained in this state all the following day. Rain continued to fall during the 12th, the great bathing day, and the pilgrims, in addition to the drenching which they experienced, drank freely of the river water, which had been polluted and rendered muddy by the heavy rain and the bathing operations of the vast multitude." The soil of the place again "is very porous, consisting of river sand, pebbles and boulders. The trenches were carefully covered over with several inches of rammed earth, but they had no roofs, and were completely exposed to the weather. In such a soil with the 11th and 12th, the whole ground must have been more or less impregnated with sewage, and the water of the Ganges must have become contaminated with the accumulated excreta of an immense multitude," and the river water was mainly drunk by the pilgrims. As to food, "large quantities of the best grain was concentrated at Hurdwar," the food offered for sale "was subjected to frequent and careful examination, and any found to be unwholesome was at once seized and destroyed." Many of the poorer pilgrims however brought food already cooked from their homes.

From the above account it will clearly appear that the seeds of cholera were sufficiently rife at Hurdwar, and that what are already known from the history of the disease, almost all the predisposing causes were in full operation. But, says the Sanitary Commissioner, fairs are taking place every year at Hurdwar from time immemorial and that between the years 1854 and 1868 only two outbreaks (including that in 1867) of considerable severity occurred. Thirteen fairs, in which no attention was paid to sanitary measures, thus passed off without any epidemic. "It may therefore be stated with perfect confidence that the appearance of cholera at the Hurdwar fair of 1867, was not *generated* by any insanitary conditions." We do not think that this

inference has been correctly deduced from the premises which the Report itself supplies. We have got a tolerably good account of the sanitary condition of Hurdwar at the beginning of April 1867. We had rain for instance on the 11th and 12th April, the effects of which were serious upon the pilgrims. We had rails again in the bathing ghat, which contributed mainly to make the bathing water, which by the bye was also drunk by each devotee on the 12th, a cesspool of mud and filth. Then again there were the furnaces. Were all these circumstances present during the thirteen non-epidemic fairs? This has not been stated by Dr. Cunningham; yet the position taken up renders it necessary for him to show that the sanitary condition of Hurdwar in the April of the thirteen years, was similar to that of 1867, in all essential points. In discussing a hotly contested point, with the view of arriving at a correct solution, no links should be omitted from the chain of reasoning, no facts bearing on the case should be kept out of sight.

We proceed now to the events which actually happened during the fair. The gathering commenced from the middle of March, and the departures from about the same time. "During the first week of April, and on subsequent days up to the 12th, dense masses of pilgrims poured in from all quarters, and encamped in every direction for miles on both sides of the river." Of the vast gangs which crowded at Hurdwar from different quarters, the pilgrims from the Terai Pergunnahs skirting the foot of the Nepal and Kemaon hills, had cholera in their train. The pilgrims from Bhurtpore were also suspected to have had the disease. But no statistics are given about these men. The dates of their arrival at, and departure from, Hurdwar, are not stated; neither the spots are known where they encamped. Some of the police officers merely conjectured that the pilgrims from the Terai probably came "to the fair only in time for the great bathing day." The health of the entire camp is stated to have been excellent up to the 12th April—the great bathing day and the second day of the rains. The vast multitude began to disperse from the noon of the same day, and on the morning of the 15th, the entire ground "was a bare plain again." The Dehra and Bijnore sections were almost empty on the afternoon of the 13th. Up to the 12th, 308. or about 21·9 per cent of the

whole, had bowel affections, and there were only 4 deaths from diarrhœa and dysentery. On the night of the 9th, a case of sporadic cholera occurred in a grass-cutter of the 14th Bengal Cavalry, which was stationed below Kunkhul. On the 13th, 8 cases of cholera were sent to hospital, and up to the 15th there were 19 admissions altogether. The above are substantially all the facts which can be gathered from the long Report bearing on the present question. No attempt whatever has been made to connect the cases mentioned above with the persons who were supposed to have come from the infected districts. And yet these facts sufficiently warrant Dr. Cunningham to come to the conclusion "that the disease, as it broke out at Hurdwar, appears to have been introduced by pilgrims from some infected district." We would ask our sanitary commissioner whether any of the sciences, properly so called, could have made the progress it has done or any progress at all, if its votaries had followed his system of logic.

The next subject is the progress of cholera in Northern India with the return of pilgrims to their homes. After giving a summary of the reports of the Medical officers in whose districts cholera appeared in an epidemic form, Dr. Cunningham comes to the following conclusions:—"That cholera went with the pilgrims from Hurdwar and accompanied them to a greater or less distance in every direction from it is a fact which admits of no dispute." "That the pilgrims imbibed the poison at Hurdwar in large numbers cannot be doubted." That in thirty-five districts of Upper India, the epidemic has gradually appeared in one place after another immediately after the return of the pilgrims. "That thirty-two medical officers, many of them men of great experience, who were indefatigable in carrying out arrangements for the care of the devotees, and most careful in ascertaining the facts connected with the appearance of the disease within the limits of their own charges, are decidedly of opinion that the cholera was imported by the pilgrims." "The facts of the great epidemic of 1867, and its spread over Northern India, teach no doubtful lesson, and it is this that human intercourse plays a very great part in the diffusion of the disease, and that returning pilgrims, in particular, are very dangerous arrivals." Before offering any comments on the above statements,

we beg to premise that the sanitary commissioner has not been able to collect numerous facts which are absolutely necessary to enable one to draw any inference about the epidemic, not previously established. On this point he himself confesses that in some respects the facts collected "are imperfect and many details which would have proved both interesting and instructive are wanting." It cannot be expected that in a large country like India, where even European district officers are not accustomed to gather useful statistics, detailed information can be obtained in a more or less complete shape. But we regret very much that some facts which could have been very easily ascertained, have not been obtained by applying for them in proper time. From certain statements in Dr. Cunningham's Report, for instance, we are led to believe that native sepoys from numerous regiments must have flocked to Hurdwar in no inconsiderable numbers. Their numbers from each corps could have been easily ascertained, their tracks from Hurdwar to their respective stations could have been watched, and the effects of the cholera poison upon them as well as upon their comrades who remained at the stations, could have been easily traced. The information thus collected would have given us reliable data to build conclusions upon, as each regiment has a medical officer in almost sole charge of the native soldiers. It is a notorious fact, however, that in 1867 cholera did not prevail to any appreciable extent among the native soldiers. Out of a number of more than 52,000 native soldiers in the whole of the Bengal Presidency, only 123 were attacked with cholera in April, May and June; and if we omit the number admitted at Peshawur, where no satisfactory connexion of the disease has been traced to the pilgrims, the number 123 becomes reduced to 66. In the thirty-five stations to which Dr. Cunningham alludes with an air of triumph, as most satisfactorily proving his theory, the number of admissions during the three months mentioned above was only 22. Dr. Cunningham makes mention of the fact of the comparative immunity of the native soldiers from cholera, but he does not state how many of them went to Hurdwar.

To come now to the conclusions of Dr. Cunningham. The first is that cholera went with the pilgrims from Hurdwar, and accom-

panied them to a greater or less distance from it; and that returning pilgrims are dangerous arrivals. Now, if this be true, it must apply to all cases, or if there be exceptions, they must be explained. According to Dr. Cuningham, the connection between the pilgrims and the outbreak of cholera has been traced to a considerable distance in the west of Hurdwar. But, says he in another place, "below Allyghur on the south, and Shajehanpore on the south-east no connection can be traced between the return of pilgrims from Hurdwar and the subsequent appearance of cholera." Even within the area which is stated to prove Dr. Cuningham's position, no less than 11 instances have been found out from his own report, which do not maintain it, but rather go to prove the contrary. (We are indebted to Dr. Smith, Sanitary Commissioner for Bengal for this fact.) Again in several stations within this area the native soldiers have almost escaped from cholera while the Europeans were attacked, the latter being certainly less exposed to external contagion. Again, in Oudh, the stations of which are not quite so far from Hurdwar as some of the most remote stations of the Punjab, which have been included by Dr. Cuningham within the thirty-five districts, the rate of mortality from cholera in 1867, seems to have been at least as great as those in the Punjab and the North Western Provinces, as the following facts, gathered from the report shews ("they contain a fair approximation to the truth"):—

Provinces.	Population.	Deaths from cholera.	Ratios per 1000.
N. W. Provinces ...	29,001,321	57,524	1.9
Punjab ...	17,586,232	43,146	2.4
Oudh ...	7,735,506	16,511	2.4

Yet the outbreak in Oudh cannot be traced to the pilgrims from Hurdwar. As no explanations have been rendered to these numerous exceptions, Dr. Cuningham's opinion does not deserve the weight which he assigns to it. As to the imbibition of cholera poison at Hurdwar, all that can be said with any degree of certainty is that the conditions of the place and the pilgrims about the 12th of April were such as to render them susceptible to an attack of cholera, and that this susceptibility

was considerably increased in the case of numerous pilgrims, while on the way to their homes.

As to the thirty-five districts where the first cases of cholera were pilgrims, and which have been mentioned several times, our first remark is that seven of these are not districts, but stations or cantonments within the twenty-eight districts to which Dr. Cuningham refers, and that in several of these, details of fact are not given to prove the importation. In one of these twenty-eight districts (Delhi), cholera broke out both in 1865 and 1866, and that according to one medical officer, Dr. Penny, whose report was drawn out subsequently to that of the other, the first cases occurred on the 14th April, when an Eurasian child from Allahabad as well as a traveller from Hurdwar who had left the place well on the 9th (that is four days before the outbreak at Hurdwar), were attacked with the disease. Again, as to Lahore, another of the twenty-eight districts, the Deputy Commissioner writes:—"There is in my opinion no positive *proof*, though strong presumptive evidence of the disease having been introduced by the pilgrims." There is also another fact, "although the large central prison at Lahore with nearly 2,000 inmates altogether escaped the disease, the women in the female jail, little over [illegible] in number, suffered considerably," and this notwithstanding the fact of the general immunity of jails within the epidemic area. The Superintendent of the jail has failed to trace the outbreak to any imported case of cholera. Again, Ferozepore and Ferozepore cantonment are two among the thirty-five districts of Dr. Cuningham. The first case in the cantonment occurred on the 24th April, but no further cases appeared until the early part of June. In another of the thirty-five districts, the first cases did not occur until the 8th of June. To bring the last two cases within the number thirty-five, the Sanitary Commissioner is driven to the strange conclusion that it is "much more probable, that these and others who were seized weeks after they had left Hurdwar were infected by pilgrims in whose company they had travelled, than that the germ of the disease had remained all the time undeveloped within the system." Lastly, we beg to direct the attention of our readers to the figures in the following table,

which we have placed together from the different parts of the report:—

Districts.	Deaths from Cholera within the period mentioned as given in Sec. II.		Deaths from Cholera in the whole Year 1867, as given in Pp. 98 & 99.
Seharanpore* ...	From 13th April to 19th June ...	1323	877
Mozzuffernuggur*	„ 15th April	737	2048
Bijnour* ...	„ 13th April to middle of June	1065	784
Bareilly* ...	„ 18th April „ 27th May ...	63†	7628
Budaon* ...	„ 18th April „ 11th May ...	14†	796
Moradabad* ...	„ 15th April „ 12th May ...	178†	4249
Shajehanpore ...	„ April „ September ...	about 3000	7781
Meerut ...	„ 14th April „ 22nd July ...	1447	4184
Allygurh ...	„ 20th April „ June ...	182†	1104
Delhi* ...	„ 14th April „ 20th June ...	1436	1321
Sirsa* ...	„ 22nd April „ end of July ...	612	1077
[illegible]* ...	„ 16th April „ 19th June ...	982	1652
Umballa ...	„ 13th April „ July ...	2527	2617

* In these districts the first cases were pilgrims.

† There must be some serious omissions in these cases.

In three of the above thirteen districts (ten of which are included within the thirty-five districts mentioned by Dr. Cuningham), the number of deaths during the year as given in one part of the report, is less than that given elsewhere as having occurred between April and June. This discrepancy cannot be explained in any way. If the figures shown against the other ten districts be approximately correct (for Dr. Cuningham has made a statement to that effect), cholera must have appeared among them in a severe form in other months than April, May and June. Therefore they fail the more to prove what they have been intended for. Again, these discrepancies have not been noticed either by the sanitary commissioner or by the district medical officers; so that, if the figures are found to be inaccurate, they do not testify to the

fact that the medical officers of the above thirteen districts have been most careful in ascertaining the facts of the outbreak.

The statement of the Sanitary Commissioner now remaining to be considered is that thirty-two medical officers strongly support the view of importation. If mere opinion be of any weight it may be stated on the other side that almost all the medical officers of Lower Bengal, whose experience as regards the outbreak of cholera is very great, believe that it is produced from local causes. But the statement of Dr. Cuningham does not deserve the importance he attaches to it. Amongst these thirty-two officers, the opinion of Dr. Penny cannot be ascertained from the report. Five others, viz. Drs. Corbyn, and Dickson and Messrs. Minas, Nulty and Harrison have adduced no reasons whatever in support of their opinion. The same is also the case with Dr. Banister, medical officer to the Viceroy's Body Guard at Deyrah, whose view the civil surgeon of the station does not seem to countenance. The opinion of Dr. Taylor of Delhi cannot be unconditionally accepted for reasons already given. The opinion of Dr. Moir of Meerut is not supported by the facts connected with the outbreak among the European troops at that very station, and this Dr. Cuningham himself acknowledges. In the same way the opinion of Dr. Bateson of Umballah and Verchere of Jullunder, are not supported by the villages of Singhawara and Toorkhra in the one case, and the cases of Gainda bhistie and the European troops in the other. Dr. Munro, Deputy Inspector General seems to attribute the outbreak amongst the troops at Jullunder to local causes. It will thus appear that the opinions of eleven out of the thirty-two medical officers have not been so carefully formed as Dr. Cuningham represents.

As to the remedial measures we are glad to observe that the opinions of the Sanitary Commissioner as to quarantine and as to forming encampments have been somewhat modified. That isolation of cholera patients and great attention to the deodorization and removal of excreta, and the breathing of pure air, are useful measures, has never been questioned by any dispassionate medical man. Indiscriminate movement of troops on the appearance of cholera is now discouraged, and the circumstances under which such a step is to be taken, have been carefully laid down (*vide*

page 143 of the report). Dr. Cuningham yet continues to believe in the efficacy of strict quarantine, but he is nevertheless of opinion that any general attempt to enforce it is undesirable and impracticable. That the facts collected by him do not prove the efficacy of quarantine, has been shewn in a very able article in the *Calcutta Review* of January 1869, entitled "Quarantine and cholera" (see pages 161 to 166); and it is needless for us to go over the same ground again. We will simply content ourselves with making one quotation from another Medical Officer. According to the Sanitary Commissioner, Dr. Bryden "has studied the general facts of the actual distribution of cholera in India with an industry and research which have been unsurpassed, and in his capacity of statistical officer, has enjoyed opportunities for the investigation which have never been afforded to any other enquirer." Now his opinion on the subject is well known. "Epidemic cholera," writes Dr. Bryden, (see Dr. Smith's report on the pilgrimage to Juggernauth in 1868, page 30.)" is never in any case spread over a definite geographical area by human intercourse alone; *nor can human agency cause the boundaries of a natural province, which has been occupied by cholera to be transgressed, so that a cholera epidemic from this source shall appear in the province immediately adjoining, and become diffused among its inhabitants.*"

In conclusion we beg to state that the elaborate report under notice, does not throw any new light 'on the nature of cholera,' or on 'the manner of its spread;' nor does it prove the efficacy of quarantine. It contains however a great mass of facts which will prove very useful to future enquirers, and the Sanitary Commissioner deserves our best thanks for the great pains he has taken in drawing up this report, evidently with the honest desire to help enquirers in their investigations into the nature of the dire disease whose havoc that of no other malady can equal.

THE GAS LIGHT OF CALCUTTA.

Enormous quantities of obnoxious and deleterious gases are daily generated in the manufacture of coal-gas for the illumination of the town. The gas compound so generated by the distillation of coal is then subjected to various washings through water, lime and oxide of iron in order to the purification of the gas for illuminating purposes. The gas thus purified is said to consist mainly of olefient gas. A thorough purification of the compound involves much delay, expense, trouble and loss of materials, and moreover the supply becomes reduced. When the demand for consumption is greater than the existing means of the Gas Company can supply, hasty operations are accompanied by imperfect washings. When the coal distilled is of a cheaper quality, the gas generated from it is necessarily poor in olefient gas. Contaminations not at all salubrious thus easily enter into or are permitted to pass off in the street-burners, to the great detriment of the health of the inhabitants. The *Hindoo Patriot* in one of its later issues draws attention to this point and urges on the Health-Officer to test the chemical nature of the gas supplied to the streets.

Leaving aside the question of the intensity of the street-lights, an accurate analysis of the gas of the Calcutta Municipality is essentially necessary for the preservation of public health. The atmosphere of the town contains already a deleterious mixture of various injurious exhalations from insufficiently operative drains and sewers and of the equally poisonous products of numerous factories. It is neglect of duty on the part of the Municipality to take no measures for the purification of the air; it is unjust, nay inhuman, to add new poisonous ingredients to the existing dangerous contaminations. Sometime ago a law was passed by which all manufactories are required so to construct their furnaces that the smoke generated should be consumed there. But we wonder why the Health-Officer does not move the Government to enforce that law. The alterations necessary for the consumption of smoke are not only cheap and easy of construction, but are profitable to the factors. The loss of heat by imperfect burning of coal in the furnaces is too great and it has been calculated that if arrangements be made for a profuse supply of air and measured quantity of coal at a time, a thorough oxidation of the same will ensure economy and profit. Less than half the amount now re-

quired for the furnace will be under the new method sufficient for the purpose.

Furnaces for melting cast-iron for railway and other purposes emit such enormous quantities of sulphurous and other sulphuretted dangerous gases, not to speak of soot from the common furnaces, to the great detriment of property and absorption of oxygen from the air, that the whole neighbourhood is rendered for some hours uninhabitable. Breathing in houses all around the factory and specially in those situated on the windward side becomes heavy and the inmates are all subjected to painful headache. Inhabitants of that portion of Baranossy Ghose's Street where the admirably enterprising Daw Babu has his General Foundry, can well assert, how painful is the breathing at afternoons when the melting furnace of the Babu is at work.

In connection with the examination of the street-lights the *Patriot* recommends the physical method of photometry as being better than the chemical. He describes a method, evidently an invention of his own, of physical photometry which will ensure accuracy of results. We admit that the physical methods now known are all very rude and imperfect. In every instance the unaided eye is made to judge of the relative intensities though the rough measurements are made by tape or graduated sliding rods. To determine the absolute intensity of light is out of the question. A photometer analogous to a thermometer in fixity of standard and felicity of observation, the present state of our knowledge can not supply. The method followed by Becquerel, Herschel, and Hunt consists in determining the intensity of the chemical rays of lights to be photometrically examined. Roscoe and Bunsen's method is based upon the action of the chemical rays on a mixture of Chlorine and Hydrogen towards the formation of Hydrochloric acid. But the chemical rays are quite different from the luminous, though Crooke found chemical rays in purely luminous rays free from admixture of ultra-violet and invisible rays. The action of the spectrum on a film of Iodide of silver extends from the fixed line G to much into ultra-violet invisible rays. On Bromide it commences at b. and extends beyond the violet, i. e., the Bromide was affected by the green, blue, and some of the indigo rays while the Iodide by indigo alone. Hence it may be hoped that the construction of a Photometer capable of measuring the luminous rays

is not very far way off. The determination of the intensity of one constituent of white light (red, yellow, green or blue) will tend towards the determination of the intensity of their compound, *white*.

In the determination of relative values, the standard of comparison is fixed by an Act of Parliament. It is "sperm candle, six to the pound, burning at the rate of 120 grains an hour." It is needless here to repeat what the writer in the *Patriot* has said already as to the impossibility of finding standard candles accurately similar to the one fixed by law, and as to the results derived from a comparison based upon inaccurate data being therefore unreliable. Professor Arago's Photometer in which the lights to be examined are polarized before they are submitted to the observer's eye has one advantage over the Photometers now in use, and it is no doubt an important advantage. By it lights of different colors are tested with care. But in this also the observer has to rely much on his unaided eye, to say whether the two polarized lights are equal or not. With this ingenious contrivance of Professor Arago we get over one objection, the comparison of colored flames, but with the proposed method of the *Patriot* we believe the intensity will be accurately fixed.

It is however to be regretted that in the above-mentioned article the writer has forgotten two important points. It has to be ascertained whether differently colored rays of light when absorbed are converted into equal amount of heat. We fear this is not the case, and the invention of our contemporary therefore invloves almost the same error though in a less degree that he intends to obviate. The comparison of colored lights becomes in fact inaccurate. The second point is the consideration of the effect of the mixture of atmospheric air with the gas on the illuminating power of its flame.

Silliman and Wurtz, in the *American Journal of Science and Arts* for July 1869, have published the results of their experiments on the effect of mixture of air with gas. These results confirmed in general those obtained by MM. Audouin and Bérard, and by Mr. Carl Schultz; though it was obvious also that the ratio of loss, with equal increments of air added to a 15-candle gas was by no means constant. In round numbers we may say that the introduction of 6 per cent of air into

the gas reduces the intensity of its flame to 0·56, or in other words, the admixture of 6 volumes of air in 100 volumes of gas reduces the intensity by 44 per cent. With the addition of less than ¼ of air, the intensity is reduced to 15 per cent; and with the addition of 45 volumes of air, or less than ½, the intensity is reduced to nil. "The surprising loss of intensity by the addition to illuminating gas of small per centages of air must be owing," according to Messrs. Silliman and Wurtz "not merely to the interior combustion due to the presence of oxygen, but still more, probably, to the associated nitrogen which acts not only as a diluent, or deductive quantity, but its specific heat is an actual *divisory* function in diminishing the flame temperature." When the intensity depends so much on the purity of the gas, it is necessary to be able to determine the exact amount of atmospheric admixture; no other method is better suited for the purpose than the Eudiometrical. This, however, is for the Gas Company to consider and not the Justices. The Municipality have to know the intensity of the gas-flame of the streets and the purity of the gas. Any trace of ammonia, sulphuretted hydrogen, or other deleterious gases must be pronounced to be a serious impurity.

It would be a very interesting and important problem to determine, namely, has the introduction of the gas-light into Calcutta any way affected the health of its inhabitants? The question is difficult in proportion to its importance. We nevertheless incline to the opinion of Faraday that, provided we can secure purity of the gas and guard against all leakage, we need not dread the gas-light as a health disturbing agent, but may welcome it as a boon of civilization. In point of fact, however, we see that the introduction of gas into houses, has in some instances interfered with the health of some of their inmates. We know the proprietor of a Dispensary to have suffered long from bowel complaints, till he gave up the luxury of working by gas-light, and betook himself to the soberer and innocuous light of the candle. We were ourselves in the first instance sufferers from headache, though we have now got accustomed to the innovation. We are of opinion, that such disturbances of health result either from leakage of the gas, or from impurities in it.

ON THE USE OF TOBACCO BY NATIVE FEMALES.

In a former number we brought to the notice of the profession and of our community a custom prevalent amongst our females, which has the show of being an injunction from the Shasters, but which, from our conviction of its deleterious consequences in a health point of view, we felt it our duty to speak of in terms of condemnation. This is the custom of putting on *sindur* on the forehead as a sign of wife-hood. We have, in the present article to speak, not of a time-honored custom but of a practice, which, though recently introduced, threatens to become a well-nigh prevalent fashion, and which, while it has no recommendation from the Shasters, is infinitely more pernicious than the custom alluded to. Even medical men might be excused for questioning the injurious effects of bedaubing the fore-head with *Sindur*, or the red sulphuret of Mercury. But it does not require any special medical training to be convinced of the injurious effects of keeping tobacco continually in the mouth.

We must confess that we bring forward this subject with extreme reluctance. It is only a sense of duty which has emboldened us to face the charge of want of gallantry which is sure to be laid at our door, for speaking however justly against anything done or favored by the fair sex. Hindu females are, in our opinion, the chastest and the soberest in the world. Nay we wrong them even to call them the soberest, for there can be no degrees of comparison when we know that there never was and never is any insobriety amongst our females. Women of ill-fame excepted, intoxicating drugs are unknown to them. The practice that we are about to speak of never had its origin in a desire for intoxication. We have been informed by a respectable old lady who is a slave to the practice that it originated in her neighbourhood at least under the idea of the local use of tobacco being good for the preservation of the teeth. We cannot absolve our females from the vanity of personal beauty, and of all the ravages which time makes to mar the beauty of the human face divine, the most hideous and therefore the most dreaded is the falling out of the teeth. It is no wonder, therefore, that our females, to guard against the deformity, should have been induced to have recourse to even a dirty habit, such as the use of the *gool* is.

It will not be uninteresting to enumerate the various ways in which tobacco is generally used in this country ;—

First.—It is smoked in the *hookah*. This is the way in which prostitutes generally use tobacco ; no respectable Hindoo female ever uses the *hookah*.

Secondly.—It is chewed with our favorite masticatory the betel leaves and areca-nut. This practice is largely met with amongst Mahomedan females and females of the North-Western Provinces.

Thirdly.—It is used in the form of powder as sternutatory, or errhine ; we allude to snuff. Tobacco snuff has the reputation of acting as a sort of purgative to the brain.

Fourthly.—It is used in the form of *gool*. This is the form in which tobacco is generally and largely used by our females. For the information of our foreign readers we give below a description of the preparation of this substance.

Tobacco leaves are first spread in the sun's rays for drying, they are then baked on fire, and when perfectly friable they are crushed into fine powder between *stone rollers*. A number of leaflets of the cocoanut after rejecting the midribs is then burnt down to ashes which are also reduced to fine powder. Two thirds of this powder is mixed with a third part of the powdered tobacco, and the resulting compound is again crushed between stone rollers ; when they are thoroughly mixed and powdered, the *gool*, as ordinarily used, results. Some use the ashes of burnt straw instead of the ashes of the leaflets of the cocoanut. This powder, which is black, is then kept in a covered vessel made of earth or metal, and a small spoon is kept beside it. A pinch or a spoonful of this powder is kept in the mouth in the space between the lower lip and the teeth. The irritant property of the powder causes constant spitting, and when by repeated spitting the quantity of it is diminished, a fresh quantity is again put in. From the mode in which it is used we can easily see, that a large portion of tobacco enters the stomach, through the involuntary acts of deglutition.

The habit of using *gool* becomes so inveterate in a short time that it becomes difficult and almost impossible to overcome it. Not all the admonitions of the doctor, not all the sufferings of the patient herself—which can be clearly shown to be directly traceable to it, not all the remonstrances of the husband and

of other superior relations on the score of the nastiness of the habit, will be able to persuade the victim to give it up. We know a native lady who has nearly given up all her native habits and customs since her renouncement of Hinduism and adoption of the Christian religion, but who still adheres to the habit of using this dirty preparation of tobacco.

The evil effects of *gool* very soon manifest themselves. Nausea, vomiting, vertigo, a feeling of relaxation in all the muscles, are the first set of symptoms that take place.

These are succeeded by more serious symptoms, such as heart-burn, acidity, loss of appetite, and with these come on diarrhœa or severe constipation, with pale countenance, sunken eyes, &c.

In others, derangements of the circulatory apparatus manifest themselves; such as pain in the precordial region, throbbing and palpitation of the heart, head-ache, giddiness, &c We know a native lady who is subject to constant functional disease of the heart, attended with palpitation, and her disease, we are satisfied, is due to her habit of using tobacco in the form of *gool.*

This use of tobacco very soon undermines the strongest health; and it is not wonderful that females of delicate nerves should suffer the most. We are familiar with instances of life-long disease and suffering clearly traceable to this cause alone. Hysteria is one of the forms in which the evil effects of *gool* manifest themselves as an inveterate disease. We have known the uterus and the ovaries to suffer chronically from the use of *gool.* Disordered menstruation, persistent pain in the ovaria and in the uterus, leucorhœa, are among some of the effects. In many instances a sort of tobacco-cachexia is developed, characterised by dyspepsia, piles, anæmia, chronic head-ache, palpitation, &c.

This use of *gool* proves mischievous in an indirect way—it seriously interferes with treatment when any acute disease breaks out, the patients being unable to give it up, as we have said before.

The evil effects of *gool* are not confined to those who use it. If it had been so, we might have abstained from bringing to light such an unpleasant topic. But unfortunately it is not so. The off-springs of mothers addicted to the use of *gool* are the greatest sufferers. Delicate, nervous, and extremely susceptible

of diseased influences, they are always a sickly race, and very seldom enjoy health, generally suffering from nervous disorders.

In view, therefore, of the evil effects of this use of tobacco by our females, manifesting in so many different ways in their own persons, and showing such dire consequences in their children, should we not rouse ourselves to see the nasty habit abolished? We ought in the first place to jealously watch that the habit is not newly acquired by any member of the family, and in the next place we ought by all means in our power, by persuasion and remonstrance, to dissuade those who are already in the habit of using it.

We ought not to remain content because the evil is not a very prevalent one. A *very* prevalent one it is not, we are glad to admit. It is not every female member of a family that is addicted to it, nor is it every family that has one or more members so addicted. But judging from what we daily see, the practice though not universal, nor even general, is far from being on the decline. It threatens on the contrary to become a fashion, so contagious is the influence of example, and so charming and so stamped with inevitable periodicity becomes the habit of using a narcotic or any substance that exerts a profound influence upon the nervous system. Now that the evil is in the bud, it is just the time to nip it.

ON CLINICAL INSTRUCTION.

In the *Medical Times and Gazette* for June 19th and 26th there is a translation of a most important Report on Clinical Instruction in the German Universities, addressed to the Minister of Public Instruction by Prof. Wurtz, Dean of the Faculty of Medicine of Paris. We learn from this Report in what high estimation clinical instruction is held in Germany. The Germans are, in fact, a curious people. They are never satisfied with doing things by halves. Whatever they do, they do thoroughly and exhaustively. They are students *par excellence:* Difficulties are nothing to them; they vanish before the magic of their indomitable energy and never-tiring perseverance. They are subtle to the last degree. They will dive to the lowest

depth of a question and they will take a survey of all its sides, before they will be satisfied of having solved it. All these traits tempt us to say they are veritable Hindus with European energy and perseverance. Look, what a thorough organization they have to afford clinical instruction. They have understood the philosophy of it and they carry it out admirably in practice.

We cannot be too particular about clinical instruction. We cannot too highly estimate its importance. It is only the most superficial observer to whom it may seem unprofitable to the individual who is made the subject of the instruction. There cannot be a graver mistake. The patient who supplies as it were the materials for the professor's lecture profits largely by it, simply for this reason that we endeavour to learn that most critically which we have to teach. There cannot be a better and a severer test of our knowledge, than being required to communicate that knowledge to others. We really extend our knowledge and we gain precision in it by the act of teaching. The teacher, in fact, learns more than the student. The clinical professor, who has to lecture upon a patient, cannot do so unless he is thoroughly acquainted with his case. In these days of the most exquisite instruments of physical diagnosis, whereby even the most hidden morbid processes are made patent to the senses, ignorance and verbiage cannot take the place of knowledge and fact. The Physician, therefore, who has to attend upon a patient and make him the subject of instruction to students, must needs have made a clear diagnosis of his case, and if diagnosis is half the cure, the patient cannot but have derived an immense advantage, which he could not have done, had it not been for the fact of this clinical instruction.

Clinical instruction is thus of real benefit to the patient. Need we speak of its benefit to the science of therapeutics, or in other words, to the whole human race. Without it, we cannot conceive, how the healing art could have advanced at all. Without it medicine would have been where, and what, it is still with quacks. Every one would have kept his experience to himself and whatever value such experience might possess would have been lost in him. The bed-side of the patient is to therapeutics what the dissecting room is to anatomy, what the laboratory is to chemistry, what the observatory is to astronomy, and the

field and forest to botany and zoology. Students can never be made *practitioners* by any amount of systematic lectures on medicine. They must be made familiar with disease in the patient, and not with mere descriptions of them in books or lectures. They shall have to treat living men with abnormal conditions, and not mere names of diseases. They must thoroughly acquaint themselves with the natural history of diseases, or their natural evolution in the order of time; and they must as thoroughly be able to mark the modifications brought about by the introduction of medicaments in the system. It is by watching the progress of disease at the bed-side that they will appreciate the different phases assumed by the same disease according to the difference of constitution, age, sex, seasons, and climates, and also according to the causes from which it has proceeded;—these different phases though apparently of the same disease, requiring different treatment. It is by watching disease at the bed-side that they will learn the value of symptoms—how even the most trivial symptoms may be the forerunner of the gravest derangements, and how apparently the most formidable symptoms may be of quite trifling significance, being simply perversion of nerve-function unaccompanied by any serious organic mischief. Thus it is by watching disease at the bed-side that the physician will be able to quiet unnecessary and groundless fears in some cases, and give timely warning to the patient in others.

Such are a few of the advantages of studying disease at the bed-side, or disease in itself as embodied in the patient. The patient, therefore, is as much our instructor as the professor himself, and we must for this reason, look up to him with feelings of gratitude no less than with feelings of kindness for his sufferings. We cannot too emphatically deprecate the rude, almost brutal way, in which patients are generally treated in hospitals and dispensaries, a fact which we have known to deter many sensitive persons from availing themselves of the advantages of such charities, though their circumstances do not permit of their paying for medical advice. We have in many instances known patients actually struck by the Surgeon with the catheter, simply because the patient could not endure the brutal manner in which he was introducing, aye forcing the instrument through the hyper-sensitive urethra. We have in many instances

known sufferings aggravated hundred-fold, diseases actually rendered incurable, and even ultimately death brought about by rude handling of sensitive parts, and by the anxiety displayed by the lecturer to satisfy every student.

Hence, while we must not lose the opportunity of learning the most from our patients, we must not forget that we have to attend to the wants and sufferings of human beings with the most delicate organization, rendered more delicate by morbific agencies, and not to mere machines out of order. We must not only learn to diagnose disease and apply the right remedy, but we must learn to respect the feelings, and bear with the irritabilities of our patients. In fact, this latter qualification of unlimited patience and forbearance is often a valuable aid in diagnosis. To the homœopathic physician it is a first requisite. He cannot be too patient and industrious in collecting symptoms. He must not only attend to all that the patient himself has to narrate, but he must, guided by the light of pathogenesis, draw out all the possible symptoms of his case.

With these preliminary observations we now proceed to a consideration of the most efficient way in which clinical instruction may be imparted. Clinical instruction means demonstration of disease and of the modifications it undergoes, or the course it runs, under treatment on the patient. Disease is revealed by symptoms, which are usually and very properly divided into subjective and objective. The subjective symptoms are those abnormal states which are felt only by the patient himself and therefore can only be described by him. These are the different varieties of sensations, feelings, and ideas; and are the utterances of the various parts of the nervous system heralding diseased action either in themselves or in other systems with which they are in immediate or sympathetic connection. The objective symptoms are those abnormal states which do not come directly under the consciousness of the patient, but are the objects of his or others' sense-organs. These are the actual physical alterations of the tissues and organs. In the case of the superficial tissues and organs, these objective symptoms become easy of apprehension, but in the case of the deeper structures they require to be very minutely studied in all their various relations; and in the great majority of them they require to be discovered by a variety

of ingenious appliances and instruments. It is the duty of the clinical professor to acquaint his students with the absolute and differential value of symptoms, subjective and objective; to teach them the use of the instruments by which symptoms are discovered, or the condition of internal organs explored.

Clinical instruction must, of course, be essentially the same; but the methods of imparting it are different in different institutions. The examination of patients, in a hospital, may be conducted and the exposition or clinical lecture thereon delivered, either in the ward, or in a separate lecture-room. Both these methods have their advantages and disadvantages. By the former we avoid the inconvenience of taking the patient from the ward to the lecture-room and of bringing him back again. This is not an easy matter for all patients. To many the fact of removal to and fro is likely to be attended with serious disturbance. But while we avoid this inconvenience, we incur another; we are obliged to subject the patient to examination before his associates in the ward, which may have a moral effect other than desirable. The reverse is the case with the other method. We examine the patients alone but subject them to the inconvenience of being removed from their place in the ward. Prof. Wurtz thus describes the two methods, the first of which is in operation at Berlin, Greifswald, and other Prussian Universities, and the second at Prague, Vienna, Würzburg, and Munich:

"I will describe what takes place at Berlin in the internal clinic of Prof. Frerichs. The lecture is delivered from 11 to 12, 150 students being assembled in a well-lighted theatre. As soon as the Professor enters, a patient is brought in lying on his bed. The Assistant-Physician reads the history of the case as it has been made out by a preliminary interrogation and examination, and then calls two *praticirenden*, who place themselves at the foot of the bed. The exploration of the various organs and a summary examination of the urine are commenced, the Professor desiring the *praticirenden* to conduct it, directing and correcting them, and questioning them as to the nature of the symptoms and the mode of treatment. Frequently he passes round graphic representations indicative of the phases of the pulse and temperature. The demonstration being exhausted, another bed with another patient is brought in, and the same exercises are conducted by two other *praticirenden*. In this way three, four, or five patients may be examined in succession, and, so to say, passed under the eyes of the whole audience. The students are also expected to attend the evening visit, which is made by the Assistant-Physician. It must be admitted that the

obligation to submit to a prolonged and sometimes a painful examination, and to be present during the development to which it gives rise, may become for many patients a source of inconvenience and anxiety. For this reason, without wishing to deny that this mode of instruction may have its advantages in certain special cases, I do not think it should serve as a model or a rule. It is, however, in favour with many Professors, and does not give rise, as I was assured, to complaints on the part of the patients. With regard to the latter, it must be supposed that their dominant idea is to get cured, and in this point of view the minute examination to which they are subjected is both a guarantee and a consolation.

"The method in operation at Prague, Vienna, Munich, and Würzburg resembles that in force among ourselves. The examination of the patient takes place in the wards, each of the *praticirenden* having charge of several beds. During the visit they are allowed, under the control of the Professor, to take part in the exploration of the organs, giving explanations as to the nature of the case, and receiving the requisite elucidations. When necessary, they visit the patient again during the day, accompanied by the Assistant-Physician. The Professor frequently enters into extended developments, either at the foot of the bed or in the middle of the ward surrounded by his pupils. This address corresponds to the clinical lecture which is given with us in the theatre after the visit."

Autopsy or post-mortem examination is an essential part of clinical instruction, inasmuch as it leads to the confirmation or rectification of the diagnosis made during life. Post-mortem examination is to morbid anatomy, what dissection is to normal anatomy. It is post-mortem examination which has not only brought precision to our knowledge of disease but has advanced that knowledge so rapidly of late years. Post-mortem examination should not be confined to a superficial examination of the organs and parts, but should include a chemical and microscopical examination of the tissues and the morbid products or growths. In such high importance is it held in Germany that the charge of conducting it devolves upon a different Professor, the Professor of Pathological Anatomy, and not upon the Clinical Professor or his Assistants. These latter may be present at the autopsy, but it is the former who performs it in presence of the pupils "with all the authority derived from a special competency and an elevated position." This mode of instruction, as Prof. Wurtz justly observes, "has been the source of incontestable progress accomplished by pathological anatomy and histology."

"To become convinced of this," continues he, "we have only to cite some of the names of the Professors. For forty years Prof. Rokitansky has

conducted the autopsies in the mortuary attached to the Vienna Hospital; and where did Prof. Virchow acquire his great authority, if not in the dead houses, first of the Würzburg Hospital, and then of the Berlin Charité? It is in these 'laboratories of the dead' that younger men, as Max Schultz at Bonn, Recklinhausen at Würzburg, and Wagner at Leipzic, are following the course pursued with so much distinction by their predecessors, and are initiating their pupils in the knowledge of organic changes, so often difficult to verify. The intervention of such masters secures for the practice of autopsies guarantees of competence, exactitude, and impartiality."

There is another advantage from this separation of the duty of conducting autopsies from the clinic properly so called. There is a natural anxiety on the part of the Clinical Professor to see his disagnoses verified, and unless there be glaring contradictions offered by the post-mortem examination, there is danger of the exact morbid changes being overlooked, ignored, or misinterpreted, and other changes being supposed to exist which do not in reality exist. We do not say all this without the authority of facts. During our studentship we had instances of its exemplification. This danger of twisting and distortion of facts is avoided by the practice obtaining in Germany. But while it has its advantages it has its disadvantages as well. The Professor of Pathology is placed in a very delicate position in relation to the Clinical Professor. Personal differences are likely to arise from difference of opinion, and may lead to hostility, which again may react so as to endanger a correct examination being made. Besides, is it right to confide the examination of the body to any other than the Physician who has treated the patient? Is the Professor of Pathology competent to appreciate the morbid changes without having been familiar with the symptoms by which they were revealed during life? Is he competent to connect the symptoms with the exact changes of which they were but the vital expressions? And is it not such a connection that is an essential element of clinical instruction, and which gives all its importance to post-mortem examinations?

"The force of such objections," says Prof. Wurtz, "cannot be denied, and yet they have not prevented most of the German Faculties adopting the mode of conducting the autopsies that has been described. Their weight is diminished first by the consideration that the greatest clinical improvement of these later years have been due to independent discoveries in pathological anatomy, and also by the obligation which the *clinicien* is under of furnishing an account of the case to the Professor who opens the body. Here is what

I myself observed at Berlin. A patient dies in the clinic, and his body, after remaining sometime in the mortuary of the Pathological Institute, is carried into a small theatre with the seats one above the other disposed in a semicircle around the table. The Professor or, if he is prevented, an Assistant-Physician proceeds to open the body, having been made aware of the direction in which his attention should be principally directed by the account of the history of the case and its diagnosis furnished him by the Clinical Professor. After placing aside any parts that may require a more attentive examination, the organs or pathological productions are passed round to the students, in order that they may first observe their general structure and external appearance. In another room, especially adapted for the purpose, the same parts are submitted to microscopical examination, the microscopes passing from one to another along a little railway. This ingenious contrivance, devised by Professor Virchow, renders possible the examination of a great number of specimens in a relatively brief space of time, still allowing the Professor to furnish the necessary explanations concerning each."

"I may make the general observation that this organization of the autopises not only offers precious resources in a scientific point of view, but it gains in dignity. I was struck with the decency and cleanliness that prevails in the dead-house of the Vienna Hospital and other establishments of the same kind, and it would seem that the suitableness of the dispositions that are adopted must exert a favourable influence over the pupils themselves. In one of the amphitheatres of which I have spoken basins with cold water and clean towels are at the disposal of the students who have been handling the specimens sent round. These are so arranged as to be, when covered by their hinged lids, on a level with the desks at which the students take their notes, the supply of water passing beneath the tables."

What has been said above relates to the general or the medical and surgical clinics. We now proceed to a consideration of the special clinics which receive the most marked attention in Germany. The Healing Art has, almost from its infancy, been divided into two main branches, Medicine and Surgery. This, we believe, is a distinction without a fundamental difference. The mechanical part of Surgery apart, it is difficult to draw the line between it and Medicine Proper. Surgery is, in our opinion, nothing but Operative Medicine. The principles, as based upon vital and other laws governing organization, are common to both. Nevertheless we believe that the distinction that has been made, as necessitating a division of duties, has been advantageous to the development of medical science. But the complexities of the healing art are too vast and too numerous, for this general division of duties to suffice to do justice to them. Hence

the division into further specialities, such as the abnormalities of the reproductive functions constituting midwifery, the diseases of the teeth constituting dentistry, and so on. While we are ready to admit the utility of such specializations in the improvement of medical science, we must warn against a too exclusive devotion to them, to the neglect of the fundamental principles. The fact is, without a thorough grounding in these fundamentals, it is impossible to advance any of the specialities. A mere ophthalmologist, a mere dermatologist, a mere obstetrician, &c., are not now looked upon with favor. Again, we must protest against the splitting up of our art into too many special clinics. The clinics, for instance, for diseases of the skin, for syphilitic diseases, for epileptic and paralytic diseases, and such like, are, in our opinion unnecessary and mischievous refinements, calculated to divert and distract the attention. We do not see any thing in them that calls for special study.

Unless this tendency to specialities be checked, there would be no end of them, so that every organ of the body might lay claim to a special clinic. Those diseases, or disease of those organs, might well be separated into special clinics, which require special knowledge and special skill, mechanical, optical, or other, for their treatment. On this view, midwifery including diseases peculiar to women and children, ophthalmology, dentistry, and psychological medicine, ought to be justly recognized as subjects requiring special attention and study. All these specialities and some more besides are well attended to in Germany. We all know what celebrity her ophthalmological clinics have acquired throughout the world. For proof we have only to mention the names of some of the great masters of the speciality, such as Von Gräfe, Jäger, Arlt, &c., men who have given altogether a new impetus to the study, and who have created as it were schools of their own. Their lectures are eagerly sought after by disciples from all parts of the world.

From the great interest of the subject we are tempted to quote Prof. Wurtz's description of the obstetrical clinic at Munich, which is under the direction of Prof. Hecker. The arrangement, as will be seen, is excellent, and, if adopted in all hospitals, would considerably reduce the mortality from puerperal diseases.

"In it are received three categories of lying-in women—those who, by paying dearly, are entitled to special attention and secresy, those who pay the ordinary charges, and those who are treated gratuitously. The establishment comprises wards for pregnant women and for those who have been delivered, a theatre, a collection of preparations employed for instruction, a cabinet in which women are examined, an apartment for one of the assistants, and a chapel. The wards into which the delivered women are admitted, do not contain more than six beds, of which two are usually empty. The building is, moreover, divided into three contiguous but completely distinct portions. The middle one is occupied by all that relates to instruction and administration, while the two lateral divisions are for the women under treatment. But one of these divisions is kept constantly empty, although quite prepared for the reception of patients when the other division has been for some time occupied. This alternate residence of the patients in these two lateral compartments allows of the completest cleansing of the one while the other is in use; the two divisions being, moreover, completely separated by the central portion. Nothing can give an idea of the cleanliness of these places, and of the precautions which are taken to prevent the transmission of the germs of disease. No student engaged in the practice of dissection is admitted to the examination of the patients, and all those who have occasion to make explorations in order to ascertain the condition of the organs or establish the diagnosis are obliged each time to wash their hands in a solution of permanganate of potash."

Besides the hospital clinics, there is in Germany, in the University Towns, a novel and a most useful institution whereby clinical instruction is afforded in a way the most acceptable to patients, at the same time that it is most profitable to students or commencing practitioners. This is what they call polyclinic:

"The object of the Polyclinic, or Town Clinic, is the introduction of advanced students or even young doctors into civil practice under the authority and direction of an eminent professor, at the same time providing the patients with skilful and devoted attendance. Two methods are employed, the patients being seen either at their own homes or themselves repairing to the consultation office, which is usually established in some special locality, and more rarely in a Hospital. The first is the *sedentary* clinic and the second the *ambulatory* clinic. In the former the patient having demanded Medical attendance, a young *praticirend* visits him at his house, examines and prescribes for him, and, in cases of great urgency, administers the first succour himself. But the Assistant-Physician has also visited the patient with him or by himself, and next morning the Director of the Polyclinic interrogates the student or young doctor, discussing, and if necessary rectifying, the diagnosis and treatment. In serious cases or where there is any doubt he visits the patient himself. The succeeding

days the patient is attended by the *praticirend*, these visits regularly continued enabling him to follow the progress of the disease or the course of the convalescence. This is no longer a mere apprenticeship, but a commencement of practice under the most auspicious conditions both for the patient and his attendant."

We cannot imagine a better method of training practitioners and of affording relief to suffering humanity than this. And remembering the evils of hospitalism,—the evils of crowding the sick under one roof, we cannot but earnestly wish that such a method were universal.

A brief account of the clinics of the Calcutta Medical College will not be without interest. We have here the same division of the clinics, as indeed wherever there is a considerable hospital for such instruction, namely general and special. The general being formed by medical and surgical cases, and the special by cases of eye-disease, &c. The specialities attended to in the Calcutta Medical College Hospital are ophthalmology, midwifery, and dentistry. The Professor of ophthalmology also lectures upon and treats diseases of the ear, and the Professor of midwifery lectures upon and treats diseases peculiar to women and children.

For the general clinics we have four wards for males, two medical and two surgical, and an equal number for females; each ward leaving 18 to 24 beds. We have two physicians for the medical and two surgeons for the surgical wards. Each physician or surgeon has thus two wards, with 36 to 48 beds. The senior physician and the senior surgeon are professors of Medicine and of Surgery respectively. The second physician and the second surgeon are professors of Materia Medica and of Anatomy respectively, and clinical professors properly so called. Clinical instruction is of course afforded in all the wards, but whenever clinical *lectures* are delivered, which we regret to say are but seldom done, they are delivered by the second physician and second surgeon. The admission of cases in the general clinics takes place on alternate days, and the distribution of the cases to the students are made by the house-physician and the house-surgeon on duty. Generally the students on duty get cases admitted on the days they are off duty. Thus it will be seen there is very little chance of *selection* of cases. Students on getting cases have to

take charge of them so long as they remain in hospital. They have to take down the previous history of each patient, and to make a thorough examination of his case so as to come to a diagnosis. This he has to submit to the physician or the surgeon, as the case may be, at his next visit, who makes his own examination of the case, and confirms or corrects the diagnosis arrived at by the student. The daily report of the case is taken and entered by the student in his case-book, and read before the Professor at each morning visit, when he comes to the bed of the patient. These daily reports consist of notes, taken twice a day at least, of the progress of the cases, which include chemical and microscopical examinations of the secretions, morbid discharges or products. In these examinations, we are sorry to say, the student does not derive much assistance from either the Professor or his assistants. The student has to conduct them under great difficulties, hardly having the advantage of a good microscope and a sufficient clinical laboratory. The fact is, the examinations are any thing but superficial.

The post-mortem examination is performed, generally in the presence of the Professor, by the *clinicien* of the patient who has died, assisted if necessary by other students, all of whom are required to attend. The arrangements for these examinations, we are sorry to say, are far from being what is desirable, there being no microscope or a chemical laboratory close by for immediate microscopical and chemical examination if necessary. If absolutely necessary, such examinations are not neglected, but they are made under considerable difficulties.

With all these defects of the Calcutta Medical College clinics, which we have felt it our duty to record, and which are the result more of financial shortcomings, than of any negligence on the part of the authorities,—with all these defects, we say, these clinics have done the most valuable service to the country. They have spread, throughout the length and the breadth of the land, practitioners with more certain knowledge of disease, with more rational methods of treatment, with infinitely greater skill in the most difficult operations on the human body, than was ever known, and for which we cannot be too grateful to the Government, under whose auspices, the noble Institution has been established.

WHOOPING COUGH OR PERTUSSIS.

Translated from Dr. Kafka's "Homœopathische Therapie."

By Dr. Leopold Salzer, M. D.

We employ *Ipec*, when the cramp of the glottis is long lasting, so that the children struggle during the fit, without being able for a proportionally long time to catch their breath; when the cough is dry, and the children vomit after every attack, bringing up however a little phlegm only; when a considerable amount of dyspnœa continues even after the fit is over, and when on the posterior lower part of the thorax sibilant rhonchi are heard. We prescribe this remedy in doses of 4, 6, 8 drops in half a tumbler of water and order according to the severity of the phenomena, 1, 2 tea-spoonful every 1, 2, 3 hours.

We are in a position to characterize that remedy, when applied under the above indications, as one whose action is as sure as it is prompt.

Tart. Emet. we prescribe when, during the fit, large quantities of tenacious phlegm are coughed up and when nevertheless audible rhonchi are to be perceived afterwards; when the children, after the fit is over, are tormented by nausea with attempt to vomit, and actually they vomit anything they take in the shape of food. Application like the above.

Veratr. is required by severe cramp of the glottis, bringing the children near to suffocation, while cold perspiration appears on the forehead and extremities; when the children grow weak and pale after the attack, or when, at the same time, there is an increase of the alvine discharges, give ample nourishment.

Should *Veratr.*, administered under these phenomena, not prove remedial, we recur to *Laches.*, the action of which, if genuine, manifests itself often in a very short time, especially when there are, at the same time, remarkable weakness, repeated fainting fits, convulsions.

If the fits appear with an extraordinary anxiety for suffocation, and the children after the fit are so exhausted that they are near to fainting with trembling over the whole body; if there be at the same time meteorism, and the gas, accumulated within the intestines, would neither escape by ructus nor by flatus, we administer *Carbo. veget.* 3—4 drops in solution and repeat the

dose every two hours. This remedy is a less reliable one in whooping cough, its action being only symptomatic, by subduing the above complaints, without however having a direct influence upon the nature of the coughing fits themselves.

The cyanotic form of the whooping cough is very dangerous, its course being liable to develope bronchitis capillaris, bronchopneumonia, and acute œdema of the lungs.

Often it occurs that the cyanosis, consequent upon the long lasting cramp of the glottis, grows very extensive, so that the children after having overcome the fit, show œdematous swelling in the face, especially around the eyes and lips, on the upper or lower extremities. In such a case we prescribe: for œdema in the face *Kali carb.* 6. in solution every 2—4 hours a dose; for œdema on the extremities, *Digit.* 3 also in solution every 2—4 hours. The application of these remedies is however not so urgent, because the œdema usually disappears spontaneously with the decrease of the numbers of the attacks and their taking a milder form. These remedies have besides, according to our experience, no pronounced influence upon the whooping cough, wherefore it is advisable, in order not to lose precious time, to prefer the continuation of one of the above named *appropriate* remedies, should even the œdematous state not so readily subside.

Should there appear, during and after the fits of whooping cough, distinct signs of *collapse*; should the children, mostly of a delicate make and a weak and sickly constitution, after the fit, shew signs of exhaustion and anæmia, while there is an evident expression of anxiety and restlessness about them long before any attack occurs; if there be cold perspiration on the forehead and extremities during the attack, while after the same (in these cases seldom attaining the intensity as in the former ones) is over, coldness of the extremities continues, the cheeks being sunken, the pulse accelerated and weak, thirst increased; if there be at the same time much perspiration during the unrefreshing sleep of the children, if they are, on awaking, very morose, disposed to cry; their appetite much reduced, while the intestinal excretions are increased; if their muscular power is considerably weakened, so that the little ones want to be carried about, while those who could already walk prefer to lie down, showing a

complete indifference towards their play-things—then we have in *Kali Arsenicosum* 3. (solutio fowleri) a very reliable and rapid remedy, which not only reduces the attacks, but acts most favorably upon the total group of the phenomena. We usually prescribe this drug in 4—8 drops mixed with half a pint of water, of which 1—2 tea-spoonful to be taken every 2—4 hours.

China 3. is also, for such a group of symptoms, a valuable remedy, which we preferably employ, when the signs of nervous erethism are prominently connected with those of weakness; we must however confess that its action upon the diminution of the fits is rather questionable to us. In order to meet the case in all directions we tried, in such a status morbi *chininum Arsenicosum* 3., and the result completely satisfied our expectations. As this drug preserves its bitter taste even in the third trituration, so that children might refuse taking it, we suspend 5—10 grains of the same in half a pint of water and order that 1—2 tea-spoonful of this solution, after having been well shaken, be taken every 2 hours.

The above group of symptoms might remind us also of *phosphor* 3., especially when there is difficulty in hawking up the phlegm when there is painless diarrhœa and when the signs of anæmia and weakness are eminently developed. Dose in solution 1—2 tea-spoonful from 1—2—3 hours.

And here we cannot omit to remark that, especially at this stage of the disease, it is of the utmost importance to the physician to examine minutely and often the little patient; for often all our remedies, in spite of their superiority, are of no avail, there being a gradual development of tuberculosis going on in the lungs, the bronchial or mesentric glands, which might tax our best efforts.

The *complications* form a most important subject in the treatment of whooping cough, they occur for the most part in the catarrhal and convulsive stage, and it is very necessary that we keep a steady eye upon them during the whole course of these stages.

In the catarrhal stage we have often to meet bronchitis or broncho-pneumonia, while in the convulsive stage, especially when of a cyanotic form, broncho-pneumonia is the most common complication.

Fever, asthma, and continual coughing even after the convulsive fit is over, indicate the formation of a new morbid process. An exact examination will then soon tell what we are about, and we shall as a rule, have to recur to that mode of treatment given under the head of bronchitis.

In the cyanotic form of the convulsive stage we shall have often to deal with capillary bronchitis, seldomer with pulmonary œdema, and we refer our readers to the respective chapters with regard to the treatment to be pursued.

In the hyperæmic form of the convulsive stage (seldomer in the cyanotic form) we often meet with *bleedings* from the eyes, ears, nose, sometimes even from the lungs, as a consequence of stagnation of the blood in severe attacks.

Bleedings from the eyes and ears are of no great importance, and, as a rule, spontaneously cease soon after the fit is over; in epistaxis, when severe, we try cold applications to the forehead and neck, or compression of the vena frontalis, should this not be sufficient, we administer internally *Arn.* 3, or *Bryon.* 3., *Bellad.* 3. or *Merc.* 3; in obstinate cases *Croc.* 3, or *China* 3.

Till now we have, by the aid of the above remedies, been able to spare our patients the application of M. Belloc's instrument.

In bleeding from the lungs it would be most unwise to recur to cold water applications on the chest, because they might easily, dangerously aggravate the fits. It is therefore more advisable to use at once internal remedies, *Phosph.* 3, *Nitr. Acid* 3—1, *Arn.* 3, or *China* 3 will in the most part of cases suffice to arrest the hæmorrhage.

The involuntary emission of stool and urine, liable to occur in all forms of the convulsive stage, is a simple consequence of the severe shock during the fits; with them, these accompanying disagreeable symptoms disappear of themselves.

Of more importance is the occurrence of hernia, amongst which the inguinal hernia is more frequent than the umbilical. The timely judicious use of the truss is here all-important.

Prolapsus of the rectum is to be attended to as often as it occurs.

A common complication during the convulsive stage, and especially in the hyperæmic form, consequent upon irritation of the brain, or from reflex action, is the occurrence of general convulsions.

They present themselves in the clonic form, and grow more or less tonic, beginning with stiffness of the limbs and ending with opisthotonus or even eclampsy. We have already, when speaking about the selection of the remedies, pointed to these forms and add only, that in a case of insufficiency of the above remedies, we prescribe with predilection *Ign.* 3, in clonic cramps, and *Hyosc.* 3, or *Stram.* 3 in tonic ones.

Convulsions in the cyanotic form of whooping cough require the application of *Ipecac.* 3, or *Laches.* 6.

Of importance is also the state of sopor; if the same continues for a proportionally long time and does not subside on the administration of *opium*, there is danger of apoplexy, especially in cases accompanied by intensive cerebral hyperæmia. We advise under these circumstances to use *Glonoin* 6 in solution.

Apoplexy during the whooping cough fit is a great rarity. Nevertheless it is incumbent upon us to be familiarized with this sort of phenomena. Derangements of the sensorium, total or partial paralysis, stammering or totally suspended speech, stupid look, point to this form of disease, against which we can recommend as very efficacious remedies, *Bellad.* 3, *Arn.* 3, *Lach.* 6 and *Cocul.* 3.

As seldom is the occurrence of Meningitis; its premonitory signs are convulsions and vomiting with all the continual phenomena of cerebral hyperæmia. If to this are associated continual delirium, stiffness of the neck and obstinate constipation, while the vomiting is uninterruptedly continuing, we may, with a great amount of probability, diagnose a case of Meningitis, we order in such a case cold applications and prescribe, according to the predominant symptoms: *Acon.* 3, *Bellad.* 3, *Hyosc.* 3 or *Stram.* 3.

The sequelæ of whooping cough are of too great importance to be passed over with silence.

Children who have suffered much during the congestive form of whooping cough from convulsions or sopor are apt, at the time when the original disease approaches its termination, to be affected with squinting, vomiting, whereby they become more or less apathetic and suffer from persistent constipation, and one or the other extremity becomes partially or completely paralyzed, the abdomen appears sunken, the neck gets stiff and the pulse retards

below its normality. Under such circumstances, we may, with a tolerable degree of certainty diagnose *Hydrocephalus acutus*, and, should the serous exudation into the ventricles be copious and the children for themselves much reduced in force, or should there be suspicion of an existing tuberculosis basillaris, our hopes of effecting a cure would be very small indeed.

For children of a good constitution, whose forces are at the same time not yet worn out, we prescribe often with the most satisfactory results, *Bellad.* 3, *Bryon.* 3, *Merc.* 3, *Helleb.* 3, or *Sulph.* 6. In very obstinate cases *Ars.* —3—6—30 has often proved of good service.

A somewhat oftener occurring sequel is tuberculosis of the bronchial or mesentric glands. We meet this form of sequelæ often in ill-constituted, much reduced children, whose whooping generally takes the anæmic form. Repeated attacks of fever, a continual, dry, spasmodic cough, night-sweats, emaciation with steadily increasing weakness, point to the affection of the bronchial glands; while we diagnose tuberculosis of the mesentric glands from the existence of obstinate diarrhœa, accompanied by a tympanitic abdomen, general emaciation and daily fever.

In affections of the bronchial glands, we often employ with permanent, but as often with only transient benefit, *Ol. jecor. aselli*, a tea-spoonful morning and evening. Should this remedy not prove efficacious enough to complete a cure, we may expect good results from the administration of *Calc. Carb.* 6—30 or from *Sulph.* 6—30, or from *Iod.* 6—30, or finally from *Phosph.* 6—30.

In affections of the mesentric glands we prescribe *Phosph.* 3—30, *Calc. Carb.* 6—30 or *Ars.* 6—30. A judiciously selected, nutritious diet, and the employment of a pure country air will here be required conjointly with the above remedies in order to master this morbid affection, so eminently inimical to childhood.

Pulmonary tuberculosis is also one of the common sequelæ of whooping cough; its diagnosis and treatment shall be treated of in the respective chapters.

After the anæmic form of whooping cough it is not uncommon to observe the development of *tabes* or *marasmus*. Without any febrile signs, without ever being severely molested by the cough, the children grow from day to day weaker, paler and more ema-

ciated, not being able to recover their strength. There is no colliquative sweat, no diarrhœa. The only cause of this dangerous affection is an obstinate gastric catarrh, in consequence of which the children do not take any, or take only such nourishment as is not nutricious at all or at least only little so. In such cases we recur to the methodic administration of *Ars.* 6—30, commencing for example with the sixth dilution morning and evening, or also three times a day, and descending the scale of dilutions one by one every four days, till the nutrition has been restored. It is a matter of course that we have at the same time to conform the dietetic and hygienic rules to the requirements of such patients. Should *Ars.* have been administered without visible benefit, for 10—12 days, we prescribe *Sep.* 6—30 or *China.* 6—30 in the same methodic way. Sometimes the methodic administration of *Quinine,* commencing at the 3rd trituration will prove useful.

The most common of all sequlæ is *emphysema,* and with it, bronchial catarrh; for its diagnosis and treatment we refer the reader to the chapter on pulmonary diseases. With regard to the bronchiectasy, a more seldom sequel of whooping cough, we recommend a similar reference to the respective chapter.

The question as to prophylactics at the time of an epidemic, has as yet been negatively answered by practitioners. School-rooms, play and recreation halls are commonly the places where the disease is communicated. It would therefore be much better to let children affected with whooping cough out of school. Personal gatherings and meetings of children represent however a small fraction only of the cause of the contagion. This is most likely owing to the contagious matter suspended in the air. It is with whooping cough as with other epidemics. One separates the healthy children from the diseased ones, that is, they are personally kept aloof from each other; are they therefore really separated? By no means. They are surrounded by, and breathe the same air contagion; all we may reasonably expect from such a measure can therefore be of a relative merit only.

A much more reasonable means of preventing the occurrence of whooping cough is the careful avoidance of all those causes which are likely to bring on catarrh, as exposure to moisture, winds, dust, gases, &c. Children should therefore during an epidemic

be clothed in accordance with the requirements of the season; care should be taken that the temperature of the room be always of an equable standard, and they should only be sent for an airing, on warm days, when there is neither wind, nor fog, and to places where they are not exposed to dust.

During the convulsive stage we have before all to be attentive with regard to the fits. Little children must be immediately raised and kept in an erect position, in order to facilitate the expectoration of phlegm, or the throwing out of vomited matter. Phlegm retained in the fauces has to be extracted by means of the finger introduced into the mouth. Elderly children, as a rule, do not require this kind of assistance, for they know to help themselves. If respiration be checked, a few strokes applied to the back will often prove sufficient to free the child of its embarrassment; or one besprinkles the face of the child with cold water which should always be kept ready. If there is danger of suffocation, the child becoming intensely livid and unconscious, with eyes protruding from their orbits, artificial respiration, friction of the extremities with a soft brush, application of vinegar to the temples, are usually the means employed, or the child is carried out to a current of air, or some irritant is applied to the skin, as spiritus sinapis, &c.

The strict observations in the dietric rules are in no stage of whooping cough of more importance, than in the convulsive stage; the same being materially influenced by the mode of the patient's living. Before all, existing causes of any kind are to be guarded against and to this class belongs: crying, laughing, running, jumping, overheating, fright and anger; then different other circumstances, referring directly to the excitation of the bronchial tubes, as cold drink, cold air, smoke, acid or oversalted food, too hasty swallowing of the food in general, and finally the sight of a fit in another child. The task of education must be performed with the greatest care, so as not to infringe these rules, so extremely important to the child's welfare; parents have in all cases to give up their school-mastering methods, exchanging them with a system of indulgence and leniency, in order to avoid all occasions, which might put the little patients to anger and excitement.

Children in the convulsive stage whose appetite is totally wanting, require particular attention from the part of the physcian, in-

order to ascertain, if there are no febrile symptoms in the evening or night hours. Enquiries have to be made about the children's state and conduct at night time; if they are not growing hot, if they are thirsty more than usually, if their cheeks are flushed, if they are restless when asleep, if they are bent to throw off their cover, or not; should we be led to suspect any nightly, febrile state, we shall have to institute exact and repeated examinations at every visit. Commonly we find an intense degree of bronchitis or of acute gastric catarrh, in anæmic and much reduced individuals, the possibility of an approaching tuberculosis must be thought of. Such children are not to be compelled to eat; their nourishment should rather be light, such as weak, slightly salted soups, milk, &c., while the detected affection is to be treated according to what has been said above about this subject; as soon as the fever is subdued, we give them, in small quantities, warmed soda-water to drink.

Many practitioners are in the habit of sending their little patients, when in the convulsive stage, up the country, or for a change of air under the expectation that the course of the whooping cough will be shortened by such a proceeding. There is certainly some good in this measure, inasmuch as the children are carried beyond the epidemic region, in consequence of which the continuation of the affection may be deprived of many, perhaps very important, morbific elements. We feel however bound sincerely to declare that up to this time we have not had occasion to recur to this measure, having for the most part seen the whole process of the whooping cough terminating within 4—6 weeks under our treatment.

We, however, send our patients for a change of air *after* the whooping cough is subdued, when they remain anæmic and reduced in force, or when there are visible signs of marasmus. Under such circumstances, pure country air, a nourishing diet, moving about, when the weather is favourable, with other children, &c., will usually do best for them. If this alone will not suffice, we administer *Quinine* 1, or in predominant anæmia, *ferrum metal.* 1, two or three times daily.

REVIEW.

Report on the Drainage and Conservancy of Calcutta. By David B. Smith, M. D., Sanitary Commissioner for Bengal.

We sincerely thank Dr. Smith for this valuable and exhaustive Report, though we do not agree with him in the main conclusions he has arrived at. The fact is, his own opinions have undergone considerable change. While editor of the *Indian Medical Gazette* he was strongly opposed to the Drainage Scheme of Mr. Clark; and now we are surprized to find him as strong an advocate. We do not think he has done so on sufficient grounds.

The Report begins with a description of the present and past condition of Calcutta, and of the system now in force for the disposal of the night soil of the City. The various schemes which have at different times been proposed as alterations and improvements of the present system, are then passed in review, together with their probable effects in a sanitary point of view. Dr. Smith finally offers his own suggestions on the subject.

The following is Dr. Smith's description of Calcutta, which, we are sorry to say, is only too true :—

It is beyond contradiction that the present condition of Calcutta is highly unsatisfactory, and is a reasonable cause of alarm to the Sanatarian. I write advisedly when I assert that, for flagrant nuisances,—stagnation of the filth,—vast accumulations of excremental matter,—vegetable and animal decay and putridity,—foul effluvia from open drains,—sickening odours generally,—sewage contamination of air, water, and soil,—impurity of drinking water,—horrible defilements of every sort,—inefficient scavenging,—want of proper drainage,—and general Sanitary mal-administration,—Calcutta will compete with any other City at Home or abroad.

It is scarcely possible that it could, as regards conservancy arrangements, be more ill-regulated than it is at the present time. It is one vast field of general uncleanliness. The preventible circumstances which endanger public health and promote the ravages of disease and death are widespread. Almost every un-hygienic condition that can be conceived as affecting the purity of the elements around us is in full play. No one who has not carefully visited the different quarters of the town can have any idea of the abundance or intensity of the mortific influences that surround the dwellings of all classes of the community.

Dr. Smith next considers the different schemes of drainage and conservancy which have at different times been proposed

as improvements of the system obtaining in Calcutta. These he very properly divides into two classes—1. Schemes of drainage properly so called, or the water-carriage system of conservancy, and 2. Schemes for separate and dry-earth conservancy.

The drainage schemes are, it seems, resolvable into three prominent systems, which have been called respectively the "*joint system*," the "*separate system*," and the "*mixed system*." In the first or the *joint* system, all sewage from houses, out-houses, stables, &c., is carried off along with rain-fall and sub-soil water; in the second or the *separate*, sewage proper is carried off by one set of pipes, every thing else by another; in the third or *mixed*, the whole of the sewage with a portion of the rain-fall are carried together, the remainder of the rain-fall being conveyed by itself into natural channels.

It seems that altogether we have had three notable schemes proposed for Calcutta, belonging to the first class. The first of these schemes was that submitted by Captain Thompson in 1837 to the Fever Hospital Committee, but which does not seem to have met with any attention. The second was a more complete scheme brought forward about the same time by Captain (afterwards Major-General) Forbes, in which it was proposed to have a canal from one end of the town to the other, running north and south. It is very fortunate, as Dr. Smith says, that this scheme was not carried out, inasmuch as it is more than questionable if a canal through the town would have added to its salubrity.

The third Drainage Scheme is the celebrated one of Mr. Clark, which is now in course of execution at a cost far exceeding the original estimate. As there is a fierce division of opinion on the merits of this Scheme, we give an outline of it, for the information of our readers, in the words of Dr. Smith:

> The system is, throughout, one of under-ground covered drainage, adapted to the whole extent of the town, not only as it is, but as it may be in the future.
>
> Five deep receiving sewers will extend from west to east in conveying lines from the river to the direction of the Circular Road. Every portion of the entire area of the town will be within 1,000 feet of one of these sewers. With them will communicate the main drains throughout the city, and continuous with these again will be the whole system of minor collateral and capillary sewers. The branch drains leading directly from houses and premises will hereafter have to be furnished by proprietors themselves.

The whole drainage system will converge to the eastward, and thence the entire sewage of the town will be conveyed, by a large under-ground sewer, to silt-pits at Palmer's Bridge, whence, during the period of the dry weather, it will be pumped up, six feet, by steam power, into a high level covered sewer extending to *Tengra*, on the western border of the Salt Lake area, where the outfall of the system is to be found.

The surface drainage of the roads will be provided for by a system of surface drains, gully-pits, and pipings. The sewers will all be furnished with man-entrances to allow of their inspection and repair, and the five large main sewers will be further provided with arrangements for flushing from the river. The outfall will be a *constant* one, the level of the Salt Lake being from 6 to 10 feet below that of the surface of Calcutta, and the natural slope being to the east. The fall is 14 feet in a distance of 4 miles. Any outfall into the Hooghly must have been *intermittent*, inasmuch as the average level of the surface of Calcutta is not more than 3 feet above, and a large portion of it below the average level of the high-water spring tides. The original outfall selected was at the end of the Baliaghata Canal, near the Circular Road, as above stated; however, it is now at Tengra Creek, distant about two miles from the Circular Road, where the height of the high level sewer is 6 feet, width 5 feet, inclination 1 in 300. The surface of the water in which the high level sewer discharges must not exceed 12 feet above datum (datum being zero of the River tide gauge at Kid's old Dock).

All the drains of the system will, it is said, have such an inclination as to ensure their being kept clear of all deposits. They will be laid at sufficient depth from the surface for the carrying out of *sub-soil drainage*. Their capacity is such as to warrant their carrying away the water of all ordinary storms; the quantity of rain-fall provided for being one fourth of an inch per hour, or six inches in 24 hours (only on two occasions during nineteen years has the fall approximated to that quantity).

The amount of drainage provided for per head is 30 gallons *per diem*, of which one-fifth will be sewage. All the inlets of the drains will be trapped so as to prevent the escape of noxious gases, and precautions will be taken for the proper ventilation of the entire system of sewers. During the rainy season, and at the time of storms, each sewer will have a *storm outlet*, both into the river and into the Baliaghatta Cut and the Circular Canal.

There will also be self-acting sluices at the river mouths of the sewers, so as to prevent the ingress of tidal water except when it may be required for purposes of "scour."

Intimately blended with this drainage system is the great Calcutta water-scheme, now in process of completion. The one may almost be said to be dependent on the other.

The proposed maximum water-supply for the town is 12 million gallons *per diem*. To this will be added the subsoil drainage of the city, the water taken from the river for scouring purposes, the rainfall, and the whole of

the night-soil of the town. The entire quantity provided for in the drainage works is equal to 24 million gallons *per diem*, or one million gallons per hour.

During the dry season the entire drainage will be raised by pumping and discharged through the high level sewer. During the season of the rains the water will rise to the level of the water in the canal where it will flow off by gravitation. Its only outlet at the time of high-water will be in the direction of the Circular Canal, which may be said to be the *natural* outfall; but at the ebb-tide every possible outlet will be made use of as channels of discharge into the *river*."

Such is the scheme which Dr. Smith, while editor of the *Indian Medical Gazette*, unsparingly condemned as a "gigantic humbug," but which, after having "carefully gone over all that has been written on the subject, all pleadings for and against, and more particularly the adverse criticisms of its minutest details," he now pronounces "to have stood *well* against the severe criticism which has been directed against it by those with whom it does not find acceptance." We must admit that Dr. Smith has very fairly and impartially discussed the whole question. He has considered in detail all the possible disadvantages of Mr. Clark's scheme, and weighing the advantages against them, he seems to think that the advantages greatly preponderate. We propose to show that they do not, and for this we go over first the disadvantages very nearly in Dr. Smith's own words:—

1. The first serious disadvantage of the scheme is the expenditure. Not only has the expenditure upon a portion of the contemplated works already far outstripped the original estimate, but there is no knowing yet as to how much more will be required to complete them. It is all very good to say that no amount ought to be spared for the preservation of health and the saving of life, but still there is a limit beyond which we cannot, and therefore ought not, to go.

2. The second disadvantage is that which is the necessary result of all hydraulic systems of sewerage. The system of pipes will be the reservoirs of the most offensive gases that would inevitably result from the decomposition of the sewage within them; they will fail from wear and tear, and they may sink in places; their perfect ventilation, though an absolute necessity, will prove a very difficult affair, and there is no knowing the trouble which the silt-pits and the out-fall may

occasion. Mr. Clark has himself admitted that "of course the sewage water during the dry months would be offensive." It will be very difficult, if at all satisfactorily practicable, to prevent accumulations of silt in the sewers, silt-pits, and the out-fall, and wherever such accumulations will take place, they will give rise to putrefactive decomposition. Already the clearing away of accumulations has proved exceedingly offensive at Entally, and they must necessarily prove the same thing at Tengra.

3. It is an under-ground and covered system in Calcutta, but from Tengra creek straight on to the southward of Rajás khal it is an open basin, 20 feet in width and 8,000 feet in length. The sewage here will have to be cleared or stirred up by dredging apparatus and what offence this might not give to the neighbouring people, and when favored by wind, to the good people of Calcutta itself.

4. The fourth most serious disadvantage is the disposal of the storm-waters. "They are to escape by every available outlet into the river and into the canals," and by trapped openings up over the streets. This will certainly save the sewers, but then—will it not pollute the river and the canals, and the atmosphere of the whole city? It has been urged by Mr. Clark that the storm-water will, by their large volume, so dilute the sewage in the sewers, that their escape from them will not sensibly pollute the water of the river and the canals, and consequently cannot be materially injurious. The whole of the contents of the sewers will be mixed up with the storm-waters, and the resulting mixture will not, we are afraid, be a very diluted thing after all. But even if the sewage held in solution or suspension in the storm-waters were infinitesimal, we do not believe that contamination with them of rivers and canals would be innocuous. "Indefinite dilution with water," says Dr. Smith, "will not destroy septic poisons, and he would be an over-confident man who would assert that he could determine the point of dilution at which all danger ceases. Modern experiences tend to establish the belief that fœcal matter, although diluted to a vast degree, may be productive of the most disastrous results."—"The truth is, if there is *any* danger in the storm-waters, it is a danger which will be broad-cast," from their overflow.

5. The fifth disadvantage arises from the inferiority of liquid sewage to solid excreta in their natural state. This objection we are ready to waive on the ground that the matter is as yet quite unsettled.

6. The sixth disadvantage is a serious one. The fluid sewage will have to be spread over 55 miles of main irrigating channels, and 90 miles of narrower cuts. Will the hypothesis of Dr. Macrae hold that the soil will absorb the whole of this abomination and not allow the offensive gases resulting therefrom to be wafted beyond the limits of the Lake-area ?

7. The seventh disadvantage arises from the flooding of the reclaimed area which will be inevitable, on Mr. Clark's own admission, during the rainy season. "If evils existed before," says Dr. Smith, "there will be a flood of them."

8. The evils of the drainage scheme will be aggravated hundred-fold, if, as it is proposed, all the sweepings of the city were to be taken to the Salt Lake area with the sewage. According to General Beadle, it is doubtful "whether the excrementation is half so unhealthy as the vegetable washing and garbage, the cook-room, stable and bazar refuse, the liquid matter from tanneries and fish-markets, and other putrid filth." "I cannot believe," says Dr. Smith, "that all the abominable sweepings of Calcutta could be deposited within two or three miles of its eastern boundary (on land *liable* by chance to be flooded) without ere long creating an atmosphere of putrefaction and fœtor such as would drive the inhabitants of Entally either into law courts, hospitals, or grave yards."

9. Perhaps the most serious disadvantage is the necessity of introducing the water-closet system in Calcutta. Not only will it be revolting to the mind of the Bengali as a Hindu, but it is doubtful if, in the majority of cases, constructed as native houses are, it will be at all practicable to introduce it. "Setting aside," as Dr. Smith justly remarks, "the question of private feeling, it is an undoubted fact that a bad water-closet is almost worse than none at all, and also that a good one is a somewhat expensive luxury (or necessity). I think it questionable, therefore, whether the poorer sections of Calcutta native society can reasonably be expected to have this part of their house-hold established and kept in order at a considerable cost. If such be not the case,

faulty water-closets will have to be tolerated and the results will affect public health, or it will be necessary to have recourse to dry conservancy; and so far as this may be the case, to that degree exactly will the water-carriage system fail as a general scheme." To have an idea of what faulty water-closets may be, we have only to spend a day in the native quarter of Benares. It is impossible to convey in words the abomination that fills every house there. The wonder is that people are not suffocated to death by the mephitism that is sometimes evolved in the privies. We were on one occasion well-nigh being so; and we would justly dread the introduction of similar evils which would be infinitely magnified in a city so differently and so worse situated and circumstanced as Calcutta is.

Such are the evils and the disadvantages, according to Dr. Smith's own showing, which must in all probability arise when the system of drainage, now in course of execution, comes into operation. One is almost tempted to ask, is not all this sufficient to condemn the scheme, in the language of Dr. Chevers, as "a great system, the leading arrangements of which are in absolute violation of the laws of public health"? We do not think it is necessary at all to recount the good and the advantages that might be shown to result from it, to see if they will counterbalance the evils and the disadvantages enumerated above. As however we have the highest respect for Dr. Smith's convictions, we must, in fairness and justice to him, review the advantages of the scheme as he has shown. Having no space at our command in the present number, we must ask the indulgence of our readers to wait till our next.

(To be continued.)

CLINICAL RECORD.

A Case of Infantile Convulsion.

UNDER CARE OF DR. M. L. SIRCAR.

[Reported by an L. M. S.]

A CHILD aged 1 year 9 months had malarious fever in the month of October 1868, in the district of Burdwan, since then he used to have fever off and on, but he had never undergone any systematic treatment for the same except occasional exhibitions of homœopathic remedies when the fever used to be rather severe. About a fortnight previous to the present occurrence the fever became rather obstinate and at this time a slight enlargement of liver was noticed. About this time too he had looseness of bowels and used to pass from 6 to 9 stools a day, the stools becoming more numerous and urgent during the night; and he was ordered to have *Arn.* 6, this was continued 3 or 4 days and the looseness and fever abated a good deal, but owing to some irregularity in diet the child had again had the fever on the 19th August 1869, the fever was rather of a continued type and he was ordered to have *Silicea* 6.

21st August.—The heat of skin rather great, pulse full, has got cough.—no medicine.

22nd—No abatement of symptoms. *Aconit* 6.

23rd—The fever symptoms and cough much the same, but they began to increase in severity till at 4 P. M. when it was observed that the skin of the child was very hot, pulse 180, tongue coated, abdomen bloated, occasional starting and tremors of the hands, lying in a state of half-drowsiness, bowels not moved since the morning. Dr. Sircar was immediately sent for and in the mean time the child had *Bell.* 6.

At 6 P. M. the child had convulsion attended with foaming at the mouth, at this time he passed a large liquid stool about 10 to 12 oz.

Dr. Sircar arrived at 7 P. M. and found the child insensible, with full bounding pulse, hoarse breathing and congestion of the lungs, ordered *Bryon.* 6 every half hour for three doses.

At 10 P. M. had another convulsion, and the child's feet were placed in warm water and cold applied to the head for about 3-fourth of an hour, the fit lasted for nearly half an hour, and the child became more sensible.

24th Aug: no fever in the morning—but the fever returned at 3 P. M. with precisely the same symptoms as on the previous day without only the convulsions, hot applications to the feet and cold to head

was had recourse to, but the child remained in a state of drowsiness till 5 P. M.—At 9 P. M. the Doctor called in and changed the medicine to *Bell.* 30; bowels moved twice after the exhibition of the above.

25th No more fever, bowels moved 3 times copiously—cont. *Bell* 30.

26th.—Well, *Bell* 30 one *globule.*

27th—A peculiar rose-colored eruption was observed on the face which subsided of itself.

28th—Bowels not moved for 2 days, no med.

29th—Bowels moved—cured.

Remarks.

I have been induced to bring forward this case to the notice of the profession simply for shewing what advantages homœopathy offers in such cases. Had the parents placed the child under the treatment of an old school physician I dare say—the child would have been half dead by the application of at least 3 or 4 blisters, mustard plasters, not to speak of the administration of *very* strong and powerful remedies internally. The successful treatment of such severe cases by infinitesimal doses of medicine, ought at least, to induce our professional brethren to give homœopathy a *fair trial.*

A Case of Mental Disease.

UNDER CARE OF DR. M. L. SIRCAR.

A boy was brought to me on the 25th April 1869 with the following symptoms: costiveness, no stool for 8 days; disposed to drowsiness; has not spoken a word for 5 days. Suspecting all this was probably due to the action of opium which the boy might have taken in some shape or other I prescribed *nux v.* 6.

26th April. Had a stool this morning and seems to be more active.

In a day or two he became all right. He remained well till the 10th May.

11th May. As bad as when he was first brought to me. The bowels were not constipated this time; but he would not utter a word. I could not satisfactorily trace the cause of the relapse. All that I could gather from the guardian was that he had been long in the sun yesterday, flying kite. I therefore prescribed *Carbo v.* 30.

13th. No change for the better. I resumed *nux v.* which had done so much good.

15th. No better. *Camphor* three times a day.

16th. No signs of improvement. He remains quite dumb and apathetic. Great difficulty in making him eat. *Puls.* 6 thrice daily.

17th. Seems more rational.

In a day or two he was all right and has continued so. Has become a voracious eater.

Remarks.

This case speaks for itself. Homœopathy has proved as much a boon to the unfortunate sufferers from disease of the mind as the non-restraint system introduced by the great Pinel.

A Case of Rheumatism.

Reported By Dr. M. L. Sircar.

10th August 1869.—Baboo M. Chakravarti aged 18 was under Allopathic treatment for 12 days for rheumatism. Iodide of Potassium was pushed to the extent of 60 grs. a day, but without the slightest impression upon the disease. The following were the prominent symptoms when he placed himself under Homœopathic treatment: considerable inflammatory swelling of the knee, ankle, elbow and wrist joints, and of some of the small joints of the feet and hands, great pain, fever, sleeplessness, obstinate constipation, and inability to move. *Bryo.* 3. ½ drop thrice daily.

11th. No change. *Lach.* 6. ½ drop thrice daily.

12th. Had one clear stool yester-afternoon, after which he felt considerably relieved. Swelling reduced to nearly half. *Lach.* only one dose.

In the evening pain and swelling much less; fever very slight; able to walk with the help of a stick.

13th. Slept well last night. Swelling and pain of right leg and left hand have disappeared. *Lach.* ¼ drop only once. Much better in the evening; pain in the left leg less; no fever.

14th. Had eaten more food than he could digest last night, in consequence of which he felt somewhat uneasy in stomach in the morning, which disappeared by evening. Had only one dose of medicine. One clear stool; slept well; no fever.

15th. Very slight pain in one toe and two fingers of the right hand. *Lach.* one dose. One stool; quite easy in the evening; no fever; slept well.

16th. Doing well. No medicine.

17th. To prevent a relapse and to complete the cure as it is called, a dose of *sulph.* 12 was given in the morning. Unfortunately a false

step was made in the afternoon in consequence of which the right foot was sprained, which swelled a little and became painful. There was slight fever in the night.

18th. *Rhus Tox.* 3. to be taken thrice. *Rhus* lotion to be applied to the painful part. By evening the pain was less, and there was no fever.

19th. *Rhus* twice internally: the lotion was repeated.

20th. For the slight pain remaining, *lach.* was resumed and continued till the 24th, after which he was quite well.

Notes on Follicular Stomatitis and Aphthæ.

By an L. M. S.

During the months of September and October there occurred in this city amongst the members of a certain very respectable family several cases of stomatitis and aphthæ. In all these cases there was fever attended with several very peculiar symptoms which deserve notice; the mucus membrane of the mouth was swollen and ulcerated, profuse salivation in two or three cases; there was such a fœtor from the mouth, that it could be easily mistaken for mercurial salivation; the gums were tender with inability to chew any solid food. Except two cases of lying-in females the rest were children whose ages ranged from 1¾ to 6 years. The number of inmates of the family was 60 to 65 and the number of cases, 10 to 12. The occurrence of the cases one after the other puzzled the Physician attending as to the cause of this distemper. The patients occupied distinct apartments, and the house was a very large one. These cases were all under the treatment of Dr. M. L. Sircar and they all made very excellent recovery after an average period of a week. The medicines exhibited were *Acid Nitric* 6 two or three times a day, (and in one case only) *Sulphur* and the application of a mild lotion of nitrate of silver (gr. v to ℥i).

The object of these notes is to ascertain whether any other practitioner in the city noticed similar cases in their practice, and if they did, the causes to which they attribute the disease.

Another object is to shew in what a short space of time and with the exhibition of a very simple medicine (Acd. nitric) the cases have got well. Had the cases been under the treatment of the practitioners of the old school, I doubt not, a large number of gargles, lotions, mixtures would have been necessary to the serious annoyance of the patients, the majority of whom were children.

Hysteric Closure of the Glottis. Tracheotomy; Recovery.

By Baboo Gopal Chunder Roy, L. M. S.

THE case that I now present to the profession is of peculiar interest, and shows how life can be imperilled by diseases apparently of the most trifling nature, and how much perseverance and patience are requisite on the part of the surgeon under such difficulties. At about 8 A. M. I received a hasty message from my colleague Baboo Doorga Doss Roy to see in consultation with him Mrs B. aged about 25, who was then said to be dying. I went and saw her lying stretched on the bed as a corpse, and my friend, who had been there for 2 hours before, was performing artificial respiration. I learned that towards the latter part of the night she fell sick and vomited 2 or 3 times, but she suddenly got worse and became comatose without any marked convulsion. The respiration was stopped and excepting the slowly beating pulse and the animal heat of the body there was no indication of life observed. I saw that with each attempt my friend made for artificial respiration, there was very little air entering the lungs. In fact there was spasmodic closure of the glottis. For some seconds the breathing would stop entirely, the appearance become livid, and the throbbing of the carotids would cease, when again with a long spasmodic gasp, life would slowly return. There was perfect coma, and in fact with such an amount of venous blood circulating in the brain, it is impossible that its functions could be properly performed. The pupils were natural and active; but during the stoppage of respiration they would dilate widely. Thus after a few spasmodic inspiratory efforts she would again sink into a dead quietude, when the breathing would cease altogether and life itself would appear as if wavering to depart or not; each of these fits being ushered in by opening of the lids, and slight flexion of the arm but without any further convulsive movement.

My diagnosis, based on the suddenness of the symptoms, the age of the patient, the peculiar localization of the disease to one part of the respiratory organ, was hysteric closure of the glottis. Trifling as the disease might be supposed to be, it had assumed a serious aspect from the nature of the vital part it involved. Prompt assistance was needed, for it was evident life could not be maintained if the disease would last longer than was compatible with it. I, therefore, at once proposed Tracheotomy and it was assented to by my friend. For it was thought if air be allowed a free access, the hysteric seizure would wear itself out without any evil consequence. The instruments were sent for, and in the meantime I gave an injection of ether, assafœtida,

Turpentine, and Castor oil; some scyballæ were passed and the improvement was wonderful. The breathing of itself became more regular, appearance natural, and the pulse strong. Dr. Beatson in the meantime arrived. For 35 minutes the respiration was continuous and there was slight restoration of consciousness, so that the patient opened her eyes when loudly called. Whilst thus congratulating ourselves on the favorable issue of the case, another fit, exactly resembling the previous ones, supervened. Respiration stopped and in vain we watched this time to observe its return for more than one minute. When the appearance became death-like, an unanimous assent was given to the immediate performance of Tracheotomy. Dr. Beatson performed the operation which was completed at about 10 A. M. Artificial respiration was kept up till 12 A. M. and although air entered more freely there was no restoration of life. Brandy injected into her mouth and rectum, mustard plaster and galvanism were all unavailing. There was total want of respiratory efforts. As long as the respiration was conducted artificially so long the pulse continued to beat, and no sooner was it intermitted than life began to flag. Recourse was had to reflex irritation of distant sensitive organs to excite breathing, and the most beneficial of all procedures was irritating the schneiderian membranes by feathers. This initiated a few voluntary respiratory movements, but in time it also became powerless. The artificial respiration was in the meantime persevered in; at 2 P. M. some consciousness returned. The patient could be roused with some effort; but after two or three forced respirations she would sink back into torpor and drowsiness. Pricking the body, irritating the nose and fauces, kept her in a state of wakefulness; but as I have observed there was a strange want of voluntary efforts to breathe. The pupil was natural throughout. Thus with reflex irritation and artificial respiration life was prolonged till 3 P. M. when the respiratory power was gradually restored, and within half an hour she sat up apparently recovered. Thus after 9 hours' hard struggle the battle was won and the patient was snatched, as it were, from the very jaws of death.

There are very few cases on record where hysteria has proved to be so dangerous. The diagnosis of Dr. Beatson was poisoning by narcotics, such as opium or hemp. In support of this view there were drowsiness and paralysis, as it were, of respiratory muscles; but the first can be better accounted for by the impure state of blood from apnœa, as for the second it should be borne in mind that there was no actual paralysis but the want of will to breathe. Again if the quantity of opium had been such as to produce death by apnœa,

its influence would have been much more manifest in the state of the pupils and consciousness. Besides, without the history of a poison it is hard to suppose that the drug could have accidentally got its way into the food. As I have premised, the symptoms, such as their suddenness in appearance, the strange whimsical nature of the disease, possession of consciousness throughout, except at a time when on account of venous blood circulating in the brain, its function was for a while suspended, the dilatability of the pupil, and the sudden recovery are more in favor of hysteria. The distinction between two diseases was urgent for the different line of practice to which each is susceptible. For whilst tracheotomy in one was the treatment which saved the patient's life; in another it would have been at the best futile or objectionable. For the respiratory passage being patent throughout, who would propose an extra opening to be made in the windpipe in preference to the natural, and incur the risk of choking up the tube with blood and retard progress? That tracheotomy was essentially called for in the present instance was beyond doubt, and in fact, I concur with my colleague when he said that it should have been performed earlier than it was actually done. The patient has since then completely recovered.

Gleanings from Contemporary Literature.

APPARENT DEATH.

Very lately, the present writer was requested to attend, on a Monday morning, the funeral of a lady sixty-seven years of age, the wife of the mayor of a small French town, who had died in the night between the Thursday and the Friday previous. On the company assembling, the curé informed us that the body would remain where it was for awhile, but that the usual ceremonies (except those at the cemetry) would be proceeded with all the same. We therefore followed him to the church, and had a funeral service without a burial. It transpired that the body was still quite warm, and presented no signs of decomposition.

In the ordinary course of things, this circumstance might not have prevented the interment; but the poor lady herself had requested not to be buried until decomposition should have begun beyond the possibility of mistake; and the family remembered, and regretted, that her brother had been put into the ground, three days after his death, while still warm, and with his countenance unchanged. They had occasionally felt uneasy about the matter, fearing that they *might* have been too precipitate in their proceedings. So in this case they resolved to take no irrevocable step without the full assurance of being justified in doing so. The corpse was kept uninterred long after every doubt was set at rest. Certainly we manage *some* things better in England than in France; amongst them being the interval allowed to elapse between death and interment. Still, there are circumstances and cases which, even here, afford matter for serious reflection.

It will easily be supposed that the dangerous briefness of this interval has been urged upon the attention of the French Legislature, and been ably discussed by the French medical press. In 1866, a petition was presented to the Senate from a person named De Cornal, pointing out the danger of hasty interments, and suggesting the measures he thought requisite to avoid terrible consequences. Amongst other things, he prayed that the space of twentyfour hours between the decease and the interment now prescribed by the law should be extended to eight-and-forty hours. A long debate followed, in which Cardinal Donnet, Archbishop of Bordeaux took a leading part. He was decidedly of opinion that the petition should *not* be set aside by the "order of the day," but that it should be transmitted to the minister of the interior for further consideration and inquiry. Some of the venerable prelate's remarks produced so great an effect on his auditors as to merit particular mention. He said he had the very best reasons for believing that the victims of hasty interments were more numerous than people supposed. He considered the regulations on this head prescribed by the law as very judicious, but unfortunately they were not always executed as they should be, nor was sufficient importance attached

to them. In the village where he was stationed as assistant curate in the first period of his sacerdotal life, he saved two persons from being buried alive. The first was an aged man, who lived twelve hours after the hour fixed for his interment by the municipal officer. The second was a man who was quite restored to life. In both these instances a trance more prolonged than usual was taken for actual death.

The next case in his experience occurred at Bordeaux. A young lady, who bore one of the most distinguished names in the department, had passed through what was believed to be her last agony, and as, apparently, all was over, the father and mother were torn away from the heart-rending spectacle. At that moment, as God willed it, the cardinal happened to pass the door of the house, when it occurred to him to call and inquire how the young lady was going on. When he entered the room, the nurse, finding the body breathless, was in the act of covering the face, and indeed there was every appearance that life had departed. Somehow or other, it did not seem so certain to him as to the bystanders. He resolved to try. He raised his voice, called loudly upon the young lady not to give up all hope, said that he was come to cure her, and that he was about to pray by her side. "You do not see me," he said, "but you hear what I am saying." Those singular presentiments were not unfounded. The words of hope reached her ear and effected a marvellous change, or rather called back the life that was departing. The young girl survived, and in 1866 was a wife, the mother of children, and the chief happiness of two most respectable families.

The last instance related by the archbishop is so interesting, and made such a sensation, that it deserves to be given in his own words.

"In the summer of 1826, on a close and sultry day, in a church that was excessively crowded, a young priest who was in the act of preaching was suddenly seized with giddiness in the pulpit. The words he was uttering became indistinct; he soon lost the power of speech, and sank down upon the floor. He was taken out of the church, and carried home. Everybody thought that all was over. Some hours afterwards, the funeral bell was tolled, and the usual preparations were made for the interment. His eyesight was gone; but if, like the young lady I have mentioned, he could see nothing, he could nevertheless hear; and I need not say that what reached his ears was not calculated to reassure him. The doctor came, examined him, and pronounced him dead; and after the usual inquiries as to his age, the place of his birth, &c., gave permission for his interment next morning. The venerable bishop, in whose cathedral the young priest was preaching when he was seized with the fit, came to his bedside to recite the De Profundis. The body was measured for the coffin. Night came on, and you will easily feel how inexpressible was the anguish of the living being in such a situation. At last, amid the voices murmuring around him, he distinguished that of one whom he had known from infancy. That voice produced a marvellous effect, and excited him to make a superhuman effort. Of what followed I need say no more than that the seem-

ingly dead man stood next day in the pulpit, from which he had been taken for dead. That young priest, gentlemen, is the same man who is now speaking before you, and who, more than forty years after that event, implores those in authority not merely to watch vigilantly over the careful execution of the legal prescriptions with regard to interments, but to enact fresh ones, in order to prevent the recurrence of irreparable misfortunes."

A remarkable pamphlet, Lettre sur La Mort Apparente, Les Conséquences Réelles des Inhumations Précipitées, et Le Temps Pendant lequel peut persister L'Aptitude à être Rappelé à la Vie,* by the late regretted Dr. Charles Londe, records accidents which are more likely than the preceding to occur in England. Even were the bathing season not at hand, deaths by drowning are always to be apprehended. We therefore cite the following:

On the 13th of July, 1829, about two o'clock in the afternoon, near the Pont des Arts, Paris, a body, which appeared lifeless, was taken out of the river. It was that of a young man, twenty years of age, dark-complexioned, and strongly built. The corpse was discoloured and cold; the face and lips were swollen and tinged with blue; a thick and yellowish froth exuded from the mouth; the eyes were open, fixed, and motionless; the limbs limp and drooping. *No pulsation of the heart nor trace of respiration was perceptible.* The body had remained under water for a considerable time; the search after it, made in Dr. Bourgeois's presence, lasted fully twenty minutes. That gentleman did not hesitate to incur the derision of the lookers-on, by proceeding to attempt the resurrection of what, in their eyes, was a mere lump of clay. Nevertheless, several hours afterwards, the supposed corpse was restored to life, thanks to the obstinate perseverance of the doctor, who, although strong and enjoying robust health, was several times on the point of losing courage, and abandoning the patient in despair.

But what would have happened if Dr. Bourgeois, instead of persistently remaining stooping over the inanimate body, with watchful eye and *attentive ear*, to catch the first rustling of the heart, had left the drowned man, after half-an-hour's fruitless endeavour, as often happens? The unfortunate young man would have been laid in the grave, *although capable of restoration to life!* To this case Dr. Bourgeois, in the Archives de Médicine, adds others, in which individuals who had remained under water as long as SIX HOURS were recalled to life by efforts which a weaker conviction than his own would have refrained from making. These facts lead Dr. Londe to the conclusion that, *every day, drowned individuals are buried, who, with greater perseverance, might be restored to life.*

Nor is suffocation by foul air and mephitical gas, a rare form of death in the United Kingdom. It is possible that suspended animation may now and then have been mistaken for the absolute extinction of life. Dr. Londe gives an instructive case to the purpose. At the extremity of a large grocer's shop, a close narrow corner, or rather hole, was the sleeping-

* Paris, chez J. B. Baillière, Libraire de l'Académie Impériale de Médecine.

place of the shopman who managed the night sale till the shop was closed, and who opened the shutters at four in the morning. On the 16th of January, 1825, there were loud knocks at the grocer's door. As nobody stirred to open it, the grocer rose himself, grumbling at the shopman's laziness, and proceeding to his sleeping-hole to scold him. He found him motionless in bed, completely deprived of consciousness. Terror-struck by the idea of sudden death, he immediately sent in search of a doctor, who suspected a case of asphyxia by mephitism. His suspicions were confirmed by the sight of a night-lamp, which had gone out although well supplied with oil and wick; and by a portable stove containing the remains of charcoal partly reduced to ashes.

In spite of a severe frost, he immediately had the patient taken into the open air, and kept on a chair in a position as nearly vertical as possible. The limbs of the sufferer hung loose and drooping, the pupils were motionless, with no trace either of breathing or pulsation of the heart or arteries; in short, there were all the signs of death. The most approved modes of restoring animation were persisted in for a long while, without success. At last, about three in the afternoon, that is after *eleven hours'* continued exertion, a slight movement was heard in the region of the heart. A few hours afterwards, the patient opened his eyes, regained consciousness, and was able to converse with the spectators attracted by his resurrection. Dr. Londe draws the same conclusions as before; namely, that persons suffocated by mephitism, are not unfrequently buried, when they might be saved.

"We have had cholera in Great Britain, and may have it again. At such trying times, if ever, hurried interments are not merely excusable, but almost unavoidable. Nevertheless, one of the peculiarities of that fearful disease is to bring on some of the symptoms of death, the prostration, the coldness, and the dull livid hues, long before life has taken its departure. Now, Dr. Londe states, as an acknowledged fact, that patients, pronounced dead of cholera, have been repeatedly seen to move one or more of their limbs after death. While M. Trachez (who had been sent to Poland to study the cholera) was opening a subject in the dead house of the Bagatelle Hospital in Warsaw, he saw another body (that of a woman of fifty, who had died in two days, having her eyes still bright, her joints supple, but the whole surface extremely cold), which visibly moved its left foot ten or twelve times in the course of an hour. Afterwards, the right foot participated in the same movement, but very feebly. M. Trachez sent for Mr. Searle, an English surgeon, to direct his attention to the phenomenon. Mr. Searle *had often remarked it.* The woman, nevertheless, was left in the dissecting-room, and thence taken to the cemetry. Several other medical men stated that they had made similar observations. From which M. Trachez draws the inference: "It is allowable to think that many cholera patients have been buried alive."

Dr. Veyrat, attached to the Bath Establishment, Aix, Savoy, was sent for to La Roche (Department of the Yonne), to visit a cholera patient,

Thérèse X., who had lost all the members of her family by the same disease. He found her in a complete state of asphyxia. He opened a vein; not a drop of blood flowed. He applied leeches; they bit, and immediately loosed their hold. He covered the body with stimulant applications, and went to take a little rest, requesting to be called if the patient manifested any signs of life. The night and next day passed without any change. While making preparations for the burial, they noticed a little blood oozing out of the leech-bites. Dr. Veyrat, informed of the circumstance, entered the chamber, just as the nurse was about to wrap the corpse in its winding-sheet. Suddenly a rattling noise issued from Thérèse's chest. She opened her eyes, and in a hollow voice said to the nurse: "What are you doing here? I am not dead. Get away with you." She recovered, and felt no other inconvenience than a deafness, which lasted about two months.

Exposure to cold may also induce a suspension of vitality, liable to be mistaken for actual death. This year, the French senate has again received several petitions relative to premature interments. The question is serious in a country where custom (to say nothing of law) rules that burials shall take place within eight-and-forty, seventy-two, or at most ninety-six hours after death. And, considering the length of time that trances, catalepsies, lethargies, and cases of suspended animation have been known occasionally to continue, it is scarcely in England less interesting to us, though public feeling, which is only an expression of natural affection, approves, and indeed almost compels, a longer delay. The attention of the French government being once more directed to the subject, there is little doubt that all reasonable grounds for fear will be removed.

The petitioners have requested, as a precaution, that all burials, for the future, should, in the first instance, be only provisional. Before filling a grave, communication is to be made between the coffin and the upper atmosphere, by means of a respiratory tube; and the grave is not to be finally closed until all hope of life is abandoned. These precautions, it will be seen at once, however good in theory, are scarcely practicable. Others have demanded the general establishment of mortuary chambers, or dead-houses, like those in Germany. And not only the petitioners, but several senators, seem to consider that measure the full solution of the problem. Article 77 of the Civil Code prescribes a delay of twenty-four hours only; which appears to them to be insufficient. Science, they urge, admits the certainty that death has taken place, only after putrefactive decomposition has set in. Now, a much longer time than twenty-four hours may elapse before that decomposition manifests itself. Deposit, therefore, your dead in a mortuary chapel until you are perfectly sure, from the evidence of your senses, that life is utterly and hopelessly extinct.

In Germany, coffins, with the corpses laid out in them, are placed in a building where a keeper watches day and night. During the forty years that this system has been in force, not a single case of apparent death has been proved to occur. This negative result cannot be cited as conclusive, either for or against the system. In a country where a million of people

annually die, an experiment embracing only forty-six thousand corpses, is too partial to be relied on as evidence. Moreover, mortuary chambers exist only in a few great centres of population; and it is especially in small towns and country districts, where medical men are too busy to inspect the dead, that premature interments are to be apprehended.

Out of Germany, as in England and France, there might be a great difficulty in getting the population to accept and make use of mortuary chambers. And even if favourably looked upon in large cities, the rich, as in Germany, would refuse to expose their dead there to the public gaze. In the country and in isolated villages the plan would be impossible to carry out. M. Henri de Parville, while announcing the existence of an infallible test for distinguishing apparent from real death, protests that to wait until a body falls into decomposition, is just as opposed to French habits, to hygiène, and to the public health, as mortuary chambers are unacceptable by the public in general. He holds that the legislature has already adopted the wiser and more practical measure. The permission to inter a corpse cannot be granted until the civil officer has gone to see the body of the deceased. When the Article 77 of the Civil Code was under discussion by the Council of State, Fourcroy added: "It shall be specified that the civil officer be assisted by an officer de santé—a medical man of inferior rank to a doctor of medicine—because there are cases in which it is difficult to make certain that death has actually occurred, without a thorough knowledge of its symptoms, and because there are tolerably numerous examples to prove that people *have* been buried alive." In Paris, especially since Baron Haussmann's administration, Article 77 has been strictly fulfilled; but the same exactitude cannot be expected in out-of-the-way nooks and corners of the country, where a doctor cannot always be found, at a minute's warning, to declare whether death be real or apparent only. It is clear that the legislature has hit upon the sole indisputable practical solution; the difficulty lies in its rigorous and efficient application.

It has been judiciously remarked that it would be a good plan to spread the knowledge of the sure and certain characteristics which enable us to distinguish every form of lethargy from real death. It cannot be denied that, at the present epoch, the utmost pains are taken to popularise every kind of knowledge. Nevertheless, it makes slow way through the jungles of prejudice and vulgar error. Not long ago, it was over and over again asserted that an infallible mode of ascertaining whether a person were dead or not, was to inflict a burn on the sole of the foot. If a blister full of water resulted, the individual was not dead; if the contrary happened, there was no further hope. This error was unhesitatingly accepted as an item of the popular creed.

The Council of Hygiène, applied to by the government, indicated putrefaction and cadaverous rigidity as infallible signs of actual death. In respect to the first, putrefaction, a professional man is not likely to make a mistake; but nothing is more possible than for non-professionals to confound hospital rottenness, gangrene, with true post-mortem putrefaction.

M. de Parville declines to admit it as a test adapted for popular application. Moreover, in winter, the time required for putrefaction to manifest itself is extremely uncertain.

The cadaverous rigidity, the stiffness of a corpse, offers an excellent mode of verifying death ; but its value and importance are not yet appreciable by everybody, or by the first comer. Cadaverous rigidity occurs a few hours after death ; the limbs, hitherto supple, stiffen ; and it requires a certain effort to make them bend. But when once the faculty of bending a joint is forcibly restored to the arm, for instance—it will not stiffen again, but will retain its suppleness. If the death be real, the rigidity is overcome once for all. But if the death be only apparent, the limbs quickly resume, with a sudden and jerking movement, the contracted position which they previously occupied. The stiffness begins at the top, the head and neck, and descends gradually to the trunk.

These characteristics are very clearly marked; but they must be caught in the fact, and at the moment of their appearance : because, after a time, of variable duration, they disappear. The contraction of the members no longer exists, and the suppleness of the joints returns. Many other symptoms might be added to the above ; but they demand still greater clearness of perception, more extended professional knowledge, and more practised habits of observation.

Although the French Government is anxious to enforce throughout the whole Empire, the rules carried out in Paris, it is to be feared that great difficulties lie in the way. The verification of deaths on so enormous a scale, with strict minuteness, is almost impracticable. But even if it were not, many timid persons would say : "Who is to assure us of the correctness of the doctors' observations? Unfortunately, too many terrible examples of their fallibility are on record. The professional man is pressed for time. He pays a passing visit, gives a hurried glance ; and a fatal mistake is so easily made!" Public opinion will not be reassured until you can show, every time a death occurs, an irrefutable demonstration that life has departed.

M. de Parville now announces the possibility of this great desideratum. He professes to place in any one's hands, a self-acting apparatus, which would declare, not only whether the death be real, but *would leave in the hands of the experimenter a written proof of the reality of the death.* The scheme is this: It is well known that atrophine—the active principle of belladonna—possesses the property of considerably dilating the pupil of the eye. Oculists constantly make use of it, when they want to perform an operation, or to examine the interior of the eye. Now, M. le Docteur Bouchut has shown that atrophine has no action on the pupil when death is real. In a state of lethargy, the pupil, under the influence of a few drops of atrophine, dilates in the course of a few minutes ; the dilatation also takes place a few instants after death ; but it ceases absolutely in a quarter of an hour, or half an hour at the very longest ; consequently, the enlargement of the pupil is a certain sign that death is only apparent.

This premised, imagine a little camera-obscura, scarcely so big as an opera-glass, containing a slip of photographic paper, which is kept unrolling for five-and-twenty or thirty minutes by means of clockwork. This apparatus, placed a short distance in front of the dead person's eye, will depict on the paper the pupil of the eye, which will have been previously moistened with a few drops of atrophine. It is evident that, as the paper slides before the eye of the corpse, if the pupil dilate, its photographic image will be dilated; if, on the contrary, it remains unchanged, the image will retain its original size. An inspection of the paper then enables the experimenter to read upon it whether the death is real or apparent only. This sort of declaration can be handed to the civil officer, who will give a permit to bury, in return.

By this simple method a hasty or careless certificate of death becomes impossible. The instrument applies the test, and counts the minutes. The doctor and the civil officer are relieved from further responsibility. The paper gives evidence that the verification has actually and carefully been made; for, suppose that half an hour is required to produce a test that can be relied on, the length of the strip of paper unrolled, marks the time during which the experiment has been continued. An apparatus of the kind might be placed in the hands of the minister or one of the notables of every parish. Such a system would silence the apprehensions of the most timid. Fears—natural enough—would disappear, and the world would be shocked by no fresh cases of premature burial.

MATTER AND FORCE CONSIDERED IN RELATION TO MENTAL AND CEREBRAL PHENOMENA.

By J. Thompson Dickson, M. A., M. B. Cantab., M. R. C. P.,

Resident Medical Superintendent of St. Luke's Hospital.

The term *Force* we understand to express that physical property in a body which separates its atoms. Force may produce action or visible motion in another body or may counteract such action—in other words Force is a term applicable to any mode of motion. Force has an existence *in potentiâ* in every thing that is visible or tangible.

Matter.—By the term matter we are to understand not only a mass of material but the simple elementary substance of which every thing that is visible or tangible is composed.

We can best appreciate matter as particles of atoms held together in certain relations. Were there no such potentiality as *force* the condition of matter would be that of absolute mass and inertia; as it is, however, no substance is absolutely a mass, but its atoms are separated from one another in a greater or less degree. In the least condition of separation we have solids, in a separation of atoms beyond a certain degree we have that form of body which is presented to our senses as liquid, and beyond a second standard we have that separation of atoms which we recognise as aeriform or gaseous.

The relation of mass to volume is more or less the inverse of the potentiality separating the atoms. The atoms of matter are absolutely indestructible, and it may be contended that force also is not capable of annihilation, though we use the expression used up, spent, or latent, merely indicating thereby that as the matter has changed its mass or volume, so the force or motion which was the essential characteristic of that mass or volume has changed its mode.

By the term *Potentiality* I mean possibility not actuality—the quality which exists in certain bodies *in potentiâ* only—that is, having power or influence of affecting or impressing us in some measure without being actually inherent in that body; the word having the same import as in the expression potential heat or potential cold.

By the term *Motion*, I mean not that visible motion which we recognise as the resultant of two or more forces, but motion in the abstract, that abstract idea of a property which influences the atoms of matter and becomes manifest to us in various modes, as light, heat, electricity, chemical affinity, &c., all of which are correlative.

By the term *Vitality* I mean the principle of animation. It is hardly necessary for me here to enter upon the arguments showing that the principle of animation—which, for want of a better expression, I still prefer to call Vitality—is in the abstract that same influence and principle which we have a notion of in the abstract idea of motion. I believe that this is now on all hands accepted.

Potential Energy is an expression I propose to use as synonymous with Vitality. I have already, in defining potentiality, illustrated the idea in the expression Potential cold, but since cold has no existence *per se*, unless it be accepted as the negation of heat, so in speaking of Potential heat we recognise that quality which influences the mass, and though not actually inherent yet is capable of manifestation as heat, by alteration of the arrangement of the particles or atoms of which the body is composed; this quality existing only *in potentia* is admitted to be motion, and *heat*, its manifestation, is called its mode. So likewise, by re-arrangement of the atoms of some forms of matter, we recognise a quality which influences the mass, though not actually inherent in it, but manifested to us as energy, which is unquestionably motion; the more certainly is it so because it is capable of conversion into, and is correlative with, all the other modes of motion with which we are acquainted. It is for this manifestation of motion I for the present retain the modal expression Vitality. Vitality or Potential energy is, therefore, not the resultant of the various physical forces operating together upon a mass or organism, but is itself a Force, operating as a force either directly as when brought to bear on any external, or indirectly as manifested in resistance when any other force is brought into antagonism with it.

The resultant of the vital with any other physical force is exhibited to us in that which we recognise as or designate a Vital Phenomenon: this may be familiarly illustrated in contraction by galvanizing a muscle.

The first point for our consideration is the process by which mental impressions are formed. It is out of the province of this paper to undertake the metaphysical question as maintained by Sir William Hamilton, that "what we are conscious of is constructed out of what we are not conscious of;" suffice it to say that consciousness is not the basis of intellectual operations, though it may often be the result; and it is sufficient for our purpose to recognise with Hume, that "we are not wiser than our experience," or with Mr. Mill, "that experience is the foundation of all knowledge."

Our ideas, crude and simple, are vital phenomena the resultants of motion, communicated from our sense organs through their respective conductors or nerves, and the potential energy of certain brain cells with which those nerves communicate.

The impression of any external object upon a sense organ, whether it be audible, visual, olfactory, gustatory, or sentient, is an impression of motion which is at once conducted as a current through the nerves, as the motion of electricity through the wires of a telegraph, to certain cells in the brain. Change instantly occurs in one or more of these. It is not that it or they are simply set in vibration or motion, but the motion communicated to them is antagonised by their potential energy, the resultant being a change in the chemical and physical constitution of that cell or those cells; the chemical change being that re-arrangement of atoms which occurs in all chemical phenomena; the physical being that which in a greater or less

degree stamps upon the cell or cells that which we recognise as the impression of the external object from which the motion was communicated.

A third phenomenon also obtains; the motion set up in one cell, or one particular set of cells, does not only affect that cell or that set, but is communicated to others in the immediate vicinity, inducing changes in them.

The evidence of the change in the cell resulting in the impression is conclusive from the fact of the impression remaining.

The evidence of the chemical change is conclusive also, for we obtain the material atoms in their changed form when thrown off as effete material.

The motion, inducing the impression in the cell, so changes the relations of the material atoms of that cell that we find that a substance has been formed there which was not present before. I would here note that experiment has gone to prove that the particular form of chemical change that occurs in all mental exertion is the production of certain phosphates: but it must be remembered that this new formation is merely a change in the relation of material atoms through the using up of some of the motion that held them in their former relations: it is not adding or taking away any material, any more than the conversion of water into ice adds to or takes from the exact quantity of matter operated upon. But as the relation of the atoms has changed, so the motion, which is now greater, in possibly a calculable amount, than before the external impression was received, has also become altered in its mode, and becomes manifest as chemical force, which further on in the cycle is evidenced.

A reservation is perhaps here necessary, for it is evident that all the material atoms of a cell may become so changed that all its potential energy may be exhausted or used up, and thus no further vital phenomena be possible in it. This, in fact, would take place were it not that those changed and useless atoms are removed, and their place taken by other atoms of the same nature and property as those that constituted the cell before the change occurred. The effete material is taken up by the circulating blood, from which pabulum by the chemical phenomenon of substitution the new atoms are supplied, which replenish the cells and enable them to maintain their vital activity; the material for supply to the blood of course being derived in the periodic assimilation of nutrient matter while the effete and useless phosphates are separated from the blood by the kidneys, and are to be found in the urine.

The evidence of the third phenomenon is perhaps not quite so demonstrable, but a little reflection will, I think, render it equally conclusive. An impression formed by the passing of a current from the periphery to the centre is immediately followed by the rousing in the mind of another or other impressions; for instance, we become sensible through our olfactory nerves of the perfume of a rose, and though we may not see or touch the flower, we directly have the impression of a rose in our minds; and as this second impression could not be called into prominence without some communication more or less direct, and as we admit that it has immediate

association with the antecedent, and also that no communication can be made without the expenditure of motion—we have sufficient reason for the conclusion that motion has been communicated from the cell or cells set in activity in the reception of the first impression.

If now we accept as fact the theory of motion in its relation to vital phenomena, and the changes in the brain cells, the result of the influence of motion, as above stated, we can analyse some of the phenomena of mind in relation to their production.

The simplest of all mental phenomena is that of simple apprehension, and next to this, and associated with it, is memory; while judgment and reasoning are entirely dependent upon the perfection of those so called attributes.

Simple apprehension we have witnessed in the production of a simple impression: we see a rose, and we become conscious of its existence; its image fades from mental view, and we are occupied with other objects and thoughts, but the image is not lost, the impression made on a cell remains, the cell is permanently changed, and continues in its new condition as long as it is healthy and intact.

How inappreciable is that change when the brain has again become quiescent, yet how slight a disturbance will again render it prominent. We live with our impressions in calm apathetic oblivion, till the equilibrium of the cells bearing them is again disturbed, their variations are then apparent, their spectra again come into mental view. One cell differs by comparison from another, and we appreciate the difference; in other words, we are conscious, but consciousness means only this appreciation of difference of one cell from its fellows; this activity, however, can only occur through the direct or indirect influence of motion.*

* I am duly sensible that I am at this spot bordering upon ground too soft to bear almost the lightest foot tread. Nor have I any wish here to enter upon a metaphysical controversy, as such is far removed from the objects of this paper. I have, however, been asked to define the pronoun we used in the above passages, a question which is an evidence of the great difficulty there is in throwing off that feeling of individuality which has so complicated the various systems of mental philosophy. It is, however, essential in a purely scientific inquiry to shake off the shackles of metaphysical mysticism, to free ourselves of the notion of an ego, and, regarding ourselves as we do the lower animals, we may make observations on our physical and psychical attributes.

It has been argued that if the mind be alone dependent upon changes in the material brain, that we can have no control over our thoughts and passions, and that we are, therefore, irresponsible beings, but this has been met by granting that we have the powers of volition. We avoid running into danger we are conscious of, *i. e.*, of which we have experience. Volition thus comes to be a dependent of experience, and results like it from the operation of impressions of things without. Again, that which we term conscience is but the standard of comparison of right and wrong, formed by experience in the mind of the individual. Almost the earliest impressions instilled into the infant by its fondling mother are coercive separations of right and wrong, as defined by her own conscience, separating in the infant mind on opposite sides of the standard line

The same phenomena obtain in all the other cells and collections of cells in the organism, and are not peculiar or limited to brain cells. We are not ordinarily conscious of having limbs till we injure them, or of having lungs or pleuræ, till they become inflamed, and after the first impression of the injury, or inflammation, we would perhaps be equally unconscious of the existence of these our belongings, could we keep them free from motion. But every movement of a broken leg acutely reminds us that we possess the member, and every respiration during a pleurisy, makes us conscious that we have a pleura, or the increased vascularity of the inflammation maintains a motion which we become aware of as the phenomenon of pain. So in our brain, though we cannot perhaps say, without reservation, that a cell is injured because it is changed by the impression of an object, yet the change is itself sufficient to define and make evident that cell's existence among its fellows, whenever it or they together are subjected to the influence of motion.

We are conscious of an image so long, and only so long, as the cell or its atoms continue in motion, and our consciousness ceases when the cell again becomes quiescent; but disturb the cell's equilibrium again and the image is reproduced, however slight the motion. The cell becomes active whenever motion of another cell is communicated to it; the current or vibratile motion, inducing material change in the cell it reaches, very similar to that which took place in the one from which it proceeded, though in a less degree, while the appreciable phenomenon is the faculty of the mind we call memory. The memories, too, occur in order, and the order is more or less that in which we have gained our experience, *i. e.* received our impressions; for instance, if we can imagine a brain in which no impression has ever occurred, and place a rose before the organs of senses in connection with it, we shall probably first produce through the medium of sight the impression of colour; next through the intervention of the sense of touch, the impression of form, dimensions, &c.; and thirdly, through the olfactory nerves the impression of smell. Let the cells bearing these impressions become quiescent, then imagine a motion again reaching any one of them, its impression will be renewed, and that of the other two will again and speedily follow; thus it would appear that every idea we have in our memories has its location in a certain number of impressed cells close together. If now we allow, in our supposed brain, the impressions of the rose-tree to follow those of the rose, the activity of the cells bearing the impressions of the rose will be followed by the activity of those bearing the impression of the tree; and it is this process, occurring in our brain when healthy and, of course, stored with its multifarious impressions, that gives us the phenomenon of mind which we call relative suggestion. Complex as are the ideas in all ordinary minds,

ideas of right and wrong often most puerile and not antithetical; as the child grows and the basis of his experience enlarges, his standard of comparison advances. Many of the puerile wrongs of infancy and childhood appear as wrong no longer, and his line of separation, *i. e.*, his conscience becomes fixed in accordance with the moral and civil laws of the polity in which he is placed.

their reproduction is always more or less in order; and although the greater the number of impressions that our brains bear the greater and more multifarious will be the ideas we remember, yet on analysis of our thoughts we shall find that they always follow some order, and we may trace back each idea to some other intimately related to it; thus, in the healthy brain, thought occurs in a sequence of ideas, each idea being suggested by, and more or less relative to, the one preceding it, or at all events related to it by association or by the order in which its impressions were first received. We see a lamp—we have the idea of light; light suggests the sun, the sun the sky, the sky astronomy. In this we see in its most simple form the manner in which in the complex workings of our daily thoughts the multitudes of impressions that pass in review are called up; motion from one active cell being communicated to others in natural order, as motion is communicated from atom to atom of metal when a current of electricity passes through a wire.

The second phenomenon of mind or judgment I will here merely touch upon in its physical aspect, being desirous to leave all metaphysical considerations out of the paper as far as possible. A new impression in a cell is immediately brought into relation with the memories, motion being necessarily communicated from a newly impressed cell to others located in or near the same spot: this allows that comparison of impression with impression by which the new one is corrected, the process by which in the lowest degree simple ideas are formed, and by which in the highest degree we have that affirmation or negation of idea about idea which constitutes the function of mind called judgment.

The same process occurring in many cells, and taking place in a brain stored with many impressions and ideas, whereby the phenomenon of sequence is sufficiently perfect to permit two or more in juxtaposition to be prominent, allows that inference of one judgment from several which constitutes that faculty of the mind which we call, in its logical term, reasoning.

I would here cite music as a very remarkable instance, and perhaps the most simple illustration of the identification of mental phenomena with the physical effects of motion. It is incontrovertible that music is a modification of motion, which reaches the aural organ of sense in waves, varying in rapidity, called sound. The reception of the impression by the brain is one factor of the vital phenomenon—the resultant of the motion of those waves of sound which reach certain cells from the aural sense organ, and the potential energy of those cells.

The cerebral cells which bear the impressions of the vibrations that produce sound are arranged in such exquisite relationship to one another that musical notes take their place in *ordo naturalis*, and in the simplest idea the notes of an octave can only follow one another in a sequence; and the fact that the reproduction of the impression of one note will immediately be followed by the remembrance in natural order of all the remaining notes either higher or lower in the scale of that key, directly points to the conclusion that the same influence which aroused the activity of the cell

bearing the first impression has passed on to those cells bearing the impressions which appeared secondarily; and if we admit the influence of the first impression to have been motion, the conclusion is inevitable that that of the second is motion also, and that a proportion of that motion which aroused the first impression passed onward to the cell bearing the second.

We may pursue these phenomena further by considering the relation which certain members of the order of musical sounds bear to one another. If we take the common scale of C, or the natural key, the sounds that we call C D E F G A B follow one another in a sequence; but though this is the most simple, yet it is not the only sequence, for certain of the cells bearing these impressions appear to have secondary relationships—thus the 3rd, the 5th, and the 8th or 1st notes of the scale bear so close a relationship that if the 3rd be struck the others will follow in the mind as conclusions of an *a priori* character; or if all the three notes are struck together they agree, or judgment affirms their relation, and we are conscious of harmony, or, if struck in a sequence, we are conscious of their natural and harmonious association. Again, if we sound the 4th, the 5th, and the 7th, we are again conscious of something like harmony; yet not perfect harmony, for the mind is not satisfied; and although we have what musicians call an essential discord—although Judgment affirms somewhat, yet the affirmation is incomplete—the essential discord stands as it were a low barrier midway between two ideas, for judgment is satisfied the moment the relative harmony—composed of the 1st, 3rd, and 5th, or the 3rd, 5th, and 8th—is again struck. So absolutely irresistible is the return to the harmony after the essential discord that it may almost be regarded as a necessity; in fact, in some highly trained musical minds so absolutely a necessity is it that after the striking of any essential discord a painful impression remains until the discord has been resolved. It would be not unreasonable to assume that the motion affecting the cells in the production of the first impression of harmonious sounds when diverted from its natural channel, so disturbs the normal quietude of other cells that the painful impression occurs from their incongruous agitation, which remains until either the motion inciting them is expended, or is again turned into its natural channel. Before the final harmony is struck, any variety of concatenation of musical notes may be introduced, in the same way as a sentence may have any number of parentheses, so long as it has its logical conclusion or sequence. It is upon this that the beauty of music depends; but whatever the number of interpolations of concatenations, and however harmonious these may be, it is none the less necessary for the final harmony to be struck before judgment is satisfied. The affirmation of idea about idea is thus the harmony of impressed cells, a current of motion reaching a cell, bringing all its relations into activity with it in their natural order, and without producing any painful or inharmonious vibrations.

I would next illustrate the idea by consideration of one of the other senses, and I think we can have few stronger evidences than those, both positive and negative, of change in the material brain, associated with the

impression and retention of words. I have not any intention of here entering upon the subject of Aphasia beyond the evidence afforded by it that language, or the impression of words, has its localization in some particular spot in the brain, which spot we may call the language, or the *word-holding*, organ.

It is certain that every word that has a place in that organ must have made some alteration in a cell before its identity could have become indelibly traced in that cell, or before its entity could have become a part of the entity of the particular cell that bears it, and it is equally certain that the alteration is induced through the agency of motion. We gain our experience of words—firstly, through the medium of sound; secondly, through the medium of that mode of motion we call light. The impression of words from sound is exactly similar to that which we have seen in the case of music; certain waves of vibrating atoms impinge on the organ of hearing, and thus set up a motion which is conveyed to the cells which are the centres for the reception of verbal speech.

The inception of words through the agency of light is almost precisely similar, varying only in the mode in which the motion originated. We see a written or printed word because certain waves or rays of light so impinge on our retina as to reproduce in it the form of the written or printed sign; these rays of light are incontrovertibly motion, and the motion thus communicated to the retina is conveyed through the nerves to the recipient organ of verbal impressions, then meeting with the potential energy of the cells inducing the chemical and impressive change and also the third change, as we have already seen. So long as the seat of verbal impressions remains healthy, the various motions of the mind will call into prominence whatever word is wanted to express an idea, provided the *word-holding* organ possesses such a word, or provided that some cell bears the impression of the word associated with the idea; for instance, we see a rose, we have a mental impression of the flower, and we instantly give it its name; perhaps from habit—at all events from education—we always associate names with persons and things, and words with ideas. So that when we look at a flower we have seen before, the cells bearing the impression, instantly communicating with the word-holding organ and exciting it, we remember at once the name; and this, like the sequence in musical notes, always occurs in natural order. If, however, we look at a flower we have never seen or heard of before, or of the class and order of which we know nothing, we cannot associate a name with it, because in the word-holding organ there is no word related to the mental impression of the flower, and therefore none to be called into remembrance by it; the motion, communicated to the brain by the sight of the flower, merely induces the impression of form, size, colour, quality, &c., and any attempt to associate it with a name with which we are familiar will be negatived by the reproduction of a mental impression of the flower associated with that name.

The same phenomena are to be traced in consideration of all the sense organs. The sense of touch also as certainly gives us various impressions of

the relation of bodies to space; affecting cells which in their natural order are aroused by the activity of the cells bearing the other sense impressions of the body, in contemplation the revival of all the elementary impressions, formed through the medium of the various senses, and giving that complete idea, which for the want of one of the simple impressions might be warped, narrowed, contracted, or exaggerated. So certainly are the impressions ascribed to touch the results of motion, that this sense requires no further demonstration.

We have to tender our best thanks to the Editors of the following Periodicals for regularly exchanging with us:—

The Indian Medical Gazette.

The British Journal of Homœopathy (Henry Turner & Co., London.)

The Monthly Homœopathic Review (Henry Turner & Co., London.)

The United States Medical and Surgical Journal.

The American Homœopathic Observer.

The Western Homœopathic Observer.

The "Homœopathic Sun."

The American Homœopathist.

The Indo-European Correspondence.

The Hindoo Patriot.

The Bengalee.

The Indian Mirror.

The National Paper.

The Dacca News.

We shall be glad to exchange with any Medical Periodical in the world.

Books, &c., for review, to be sent, carriage paid, to the Editor, direct.

SERAMPORE PUBLIC LIBRARY 1859

THE

CALCUTTA JOURNAL

OF

MEDICINE

VOL. II.] **Nov. & Dec., 1869.** [NOS. 11 & 12.

A RETROSPECT.

OUR RETROSPECT naturally resolves itself into—1. A Review of the progress of Homœopathy in India; and 2. A Review of ourselves.

1.—*Progress of Homœopathy in India.*

We have not yet been able to trace when and by whom was homœopathy first introduced into India. In an article on "Homœopathy and its introduction into India," in the *Calcutta Review* for January 1852, we find the following statement—"The system has been extensively practised by amateurs, in the civil and military services, and by other gentlemen; and the success that has attended their practice, both upon Europeans and Natives, has been such as to astonish themselves and all who have witnessed it. There is perhaps scarcely a large district in India, in which such an amateur has not for years been diffusing blessings around him." From this it appears that homœopathy must have been introduced here some years, though it is impossible to say how many, before 1852, and that the introduction was most probably effected by *amateurs*, generally the pioneers of medical progress.

Of amateurs, the names of two gentlemen deserve especial and honorable mention. We need hardly say that we allude to Baboos

Rajender Dutt and Loke Nath Moitra. With an uncommonly practical and matter-of-fact intellect, Baboo Rajender Dutt was the first to discern the superiority of the European allopathic system over the native, and he was the first to introduce it amongst us, which he succeeded in doing in spite of ridicule and obloquy and opposition. Similarly, when brought face to face with homœopathy, he was the first to discern its really scientific character, and hence to appreciate its immense superiority over all other methods of treatment, and he has been the first to feel it his duty to help it to supersede that which he, a few years ago, had felt it equally his duty to introduce amongst his countrymen. And we all know how brilliant has been the victory which he has gained. By a series of cures verging towards the miraculous, because unexpected and effected in cases pronounced incurable by the faculty, he took the profession and the lay public quite by surprise, chilling the former into panic, and filling the latter with amazement at the wonder-working globule. The tongue of scepticism was not silent at the un-wonted therapeutic success of a veritable layman. To various causes were attributed the cures effected. By some to poison which the Baboo was supposed to use in place of the homœopathic dilutions, by others to his powers of acting upon the mind, by others again to the strict dietetic regimen which he used to enjoin.

But none could deny the fact of the cures. Numbers who were not over-sceptical but believed that the cures might be due to the medicines employed, availed themselves of the Baboo's advice and got cured of some of the most obstinate chronic diseases, and became unflinching witnesses of the truth and efficacy of the system. Some of them were so charmed at the astonishing result obtained by homœopathic treatment that they left their occupations, began to attend his charitable Dispensary at home, and turned out his disciples. A great many of these have become practitioners and are now scattered over the length and breadth of the land. Some of them have become very successful in their practice and have reflected much credit upon their Master.

Of all the disciples of Baboo Rajender Dutt, Baboo Loke Nath Moitra has done him the greatest honor. Just as Baboo Rajender has been instrumental in spreading the cause of homœopathy in Bengal, Baboo Loke Nath has been instrumental and equally

successful in spreading it in the North-Western Provinces. Our readers are no doubt aware of what Baboo Loke Nath has done in Benares under the fostering care of that genuine philanthropist, Mr. J. H. B. Ironside. It is true that, had it not been for the patronage and energy and zeal of Mr. Ironside, homœopathy could not have obtained a footing in the strong-hold of Hinduism. But it is equally true that, had it not been for the knowledge and skill and devotedness of Baboo Loke Nath, homœopathy could not have maintained its footing even after having obtained it under especial favorable circumstances.

After the remarkable success of the Homœopathic Dispensary and Hospital at Benares, the appreciation of the system has spread far and wide in the North-West. Lay practitioners have established themselves at Allahabad and at Patna; and we hear a Dispensary has also been established at Agra through the exertions and munificence of Mr. Ironside.

Thus has homœopathy, the greatest, the most glorious, and the most beneficent reform in medicine, been established in India by lay appreciation, lay energy, and lay patronage alone. The profession has not yet had much hand in it. We ourselves, we must with gratitude acknowledge, owe our conversion to Baboo Rajender Dutt, not exactly to his teaching, but to the pertinacity with which he used to urge us to look into the subject and give it a fair hearing and a fair trial. The enthusiasm with which he labored in the cause, the disinterestedness that he displayed throughout, the successes that he achieved, together with the conversion of such men as Pandit Ishwara Chandra Vidyasagara who had derived personal benefit from homœopathic treatment and whom no man could suppose capable of being duped;—all these induced us to lay aside our professional pride and professional obstinacy for a time. We began by reading books. Granier did not satisfy us, as being more rhetorical than logical and scientific.*

* This was our impression when we first took up Granier's works. In justice to the author we must say that we have since changed our opinion of him. In fact, we look upon his "Conferences upon Homœopathy," and his "Rights of Man in the Domain of Medicine," as most remarkable productions, characterized as much by soundness of argument as by brilliancy of eloquence. Felicity of illustration is quite a charming feature of these works. They deserve to be read by all lovers of progress in medicine.

Morgan's "Philosophy of Homœopathy," which we had taken up to sharply review for a local Paper, made some impression so as to lead us to think homœopathy might not be the great humbug it is so generally represented and believed to be. Sharp's "Investigation of Homœopathy" and his "Letter to Sir B. Brodie" placed the subject in the clearest light, and removed many doubts and difficulties. But what made the most impression upon the mind was Hahnemann's Organon. There we found a master mind dealing with his subject in the most thorough and truly scientific manner. Compared with other medical authorities he appeared a giant among pigmies. Of course there were serious blemishes palpable in his speculations, but these we could easily see as no less the result of the ignorance of the times in which he lived, than as the natural product of a mind bent upon destroying the errors of the past. A great deal of his acrimony and sharpness was due to the shameless persecution to which he was subjected.

Thus prepared we thought it our duty to make actual trials. We began looking through the telescope, and lo! what was the result. We declared it in our address at the Fourth Annual Meeting of the Bengal Branch of the British Medical Association* of which we were then Vice-President. And we have been declaring it month after month in our Journal.

The sketch we have given above of the introduction and progress of homœopathy in India, is, we are fully aware, the most meagre imaginable, thanks to the paucity of the information we have been able to gather. We shall therefore feel obliged by any information that may be furnished to us on the subject, especially on the early history of homœopathy in India. We appeal, in particular, to the oldest members of the military and civil services, most of whom were themselves instrumental in furthering the cause of the Hahnemannian reform, and we have no doubt they will not grudge to favor us with the information needed.

2.—*Ourselves.*

On a review of our own labors for the past year we find that the only thing we have to congratulate ourselves upon is, that we have held on—held on, in a manner, in spite of ourselves, in spite of the

*Held on the 16th February 1867.

serious impediment put in our way by pressure of professional duties, hardly leaving any leisure or even frame of mind for literary composition. Compared to the chronic state of arrears into which the Journal has fallen, we must admit that the reception it has met with from our brethren of the Press and from the Public is much warmer than we could legitimately expect; we therefore here take the opportunity of tendering them our sincere thanks.

We have had more assistance in this the second year of our existence than we had in the first. To those therefore who have rendered us help we here offer our cordial thanks, with which alone, as yet, we can repay their valuable services. The Journal has been to us a labour of love, and we believe it has been so to our contributors.

The Journal is looked upon as the accredited organ of the homœopathic school. We are not ashamed to own this. On the contrary we are proud of the honor. In advocating homœopathy we are not simply acting on behalf of an injured cause, but we sincerely believe that we have but ennobled ourselves by being on the side of a truth, the greatest yet discovered by the intellect of man, and the most pregnant with blessings to the whole human race. It is this conviction which has sustained us against the bad name we have acquired.* We do not exaggerate. The other day only, a European friend, a most respectable and enlightened man, a warm philanthropist, and a sincere well-wisher of our country, writing to us on the subject of the desirability of a Science Association for the Natives of India, to which he drew attention lately, could not help wishing that we had not ranged ourselves under the party name of homœopathy, though he confessed he himself was not embarrassed by a conventional designation. This shews the extent of prejudice and hence of ignorance that still prevails among even the most enlightened portion of the community regarding homœopathy and medical matters in general. A man cannot escape having a stigma on his name; and his opinions are likely to be looked upon with suspicion, simply for declaring his honest and

* Dr. Sharp has nobly said: "If, on the one hand, I have lost very dear friends, on the other, I have gained much in medical knowledge; if I have fallen low in the estimation of my medical brethren, my patients have greatly benefited; if I have suffered much in personal feelings, I enjoy the consolation of a quiet mind."—*Investigation of Homœopathy*, 7th Ed., p. 342.

conscientious belief that a particular system of medicine may not be altogether devoid of truth, though it is an acknowledged fact, that Medicine of all the sciences is the most uncertain and imperfect, and therefore susceptible of the most diversified opinions.

But it is not homœopathy alone that we advocate. The fact is, we do not advocate any system as a system or the badge of a party or sect. We advocate whatever of truth there is in any system, be it what it may. Our thorough conviction of the inestimable superiority of homœopathy over all the other systems of medicine put together, our most ardent admiration for Hahnemann as a profound observer, a genuine discoverer, and the greatest benefactor of his race, have not blinded us to the fact that there are short-comings in his system which must be remedied, that there are principles and facts in the other systems which must be taken advantage of, and which must be co-ordinated and harmonized, nay, that researches have yet to be made in many directions, before we can hope to build therapeutics on foundations that will remain unshaken for ever.

The fact is, we most sincerely regret the attitude of hostility and opposition with which the schools of medicine have been facing each other. Certainly the old school is to blame for initiating this attitude, and the new school was as certainly justified in placing itself in that attitude, because we know it has been driven to it in self-defence. But can it be justified in continuing in that attitude? Is it not high time that it should turn away from polemics now idle and useless, however necessary it was in the beginning, and apply itself vigorously to researches on disease, its etiology and pathology, that is, dive beyond mere symptomatology? In the days of Hahnemann it would have been fatal to the building up of therapeutics to have invoked the aid of pathology, conflicting and uncertain as it then was; but now it would be equally fatal to its progress to tie therapeutics to mere symptoms, without referring them to the morbid conditions or pathology of which they are but the exaggerated physiological expressions. And in its researches in this direction the new school cannot do better than join hands with the old; nay, we believe it cannot do without availing itself of the immense work that has been already done by the latter. The old school in its groping after a therapeutic law has unconsciously done as much for the progress of medicine,

as old Alchemy in its search after the philosopher's stone did for Chemistry.

We believe that the old school of medicine, though devoid of a law of healing by drugs properly so called, is not on that account altogether devoid of all vitality, so as to be no longer of any use, now that such a law has been discovered. Had it been so, the old school could not have continued in existence, far less domineered. The reason of this is found in the fact that the equilibrium of the human organism, as indeed of all living organisms, is maintained by the concurrence of a variety of laws, mechanical, chemical, electrical, no less than the so-called vital proper. Consequently diseases or disorders of living organisms must necessarily result from infringement of one, or more, or all of these laws. Now the old school has advanced very far in its researches on mechanical and chemical disorders *per se*, and the mechanical and the chemical effects as the sequelæ of the vital disorders. As a matter of course, it is very successful when it has to counteract such disorders, or such effects of vital disorders, though in the last cases it is not so successful as in the first, its efforts being more palliative than curative. The grand mistake of the new school, while yet in its infancy, was to believe, in the enthusiasm of its first astonishing success with the newly-discovered law of healing, that that was the be all and end all of therapeutics, that the recognition of the other than the vital laws of the organism was next to unnecessary. We are sorry to see the mistake still largely prevails in the school, chiefly among those who call themselves pure Hahnemannians. With them it is a sin to depart from the dicta of the Master uttered in the latter years of his life—a sin to give medicines in low dilutions and mother tinctures, a sin to use even the most common and useful auxiliaries, simply because they are used by the old school. This, we must say, is as much bigotry and as mischievous, as that which so disgraces the dominant school.

Homœopathy must be purged of such blunders and such bigotry, in order that it may become, what it has already given so much promise of, the true and rational system of medicine. Full and fair play should be allowed to honest men in pursuing their profession after their own unbiassed judgment. Facts should never be ignored, but all carefully weighed and turned to account.

They should be read in the light of the law the discovery of which has marked an epoch in medicine, and the law itself should be read in their light. It is thus and thus only that we shall be able to appreciate the importance of the law, in as much as we shall thereby be able to discern its limits and capabilities and resources.

We have not, thus, seen any reason to deviate from any of the principles enunciated in our prospectus or in our creed. Our continuance in the field is demanded by the same necessity which caused our first appearance, namely, "the want of a Paper for the record and utilization of all the available facts in medicine." Facts of cure, or of relief of suffering, by known remedies and methods, are welcome to our pages, come from what quarter they may. But we must be satisfied that they are *facts*. And how can we be so satisfied unless they are watched and reported by authorities competent to do so? And whom can we take as competent authorities, unless it be men who have had training to enable them to judge of disease and treatment? Some very warm friends of homœopathy have charged us with having departed from the catholic spirit of the Journal, simply because we could not conscientiously admit into its pages cases reported by men who have had no professional training whatever to enable them, we do not say to treat, but to *report* cases. We do not question that laymen can *treat*, and treat successfully too; but we must certainly be very cautious in receiving the reports of the cases they treat. We are quite willing to admit that there may be exceptional cases of laymen who by extraordinary intelligence and dint of self-study have attained sufficient proficiency in all the branches of the profession as to be no way inferior to the regularly trained practitioner. But we cannot sacrifice the interests of science for the sake of these solitary exceptions. For, once we allow the irregularity to creep in, there will be no limit to it. The Journal will be flooded with spurious cases.

How far the Journal has been instrumental in spreading a knowledge of homœopathy we do not pretend to say. We do not, in fact, like to repeat the folly and the vanity which Æsop so well exposed and chastised in his fable of the fly who, sitting upon the axle-tree of a chariot-wheel, exclaimed, what a

dust do I raise! As we have seen above, we made our appearance in the field after it has been prepared for action. But whether we take any credit upon ourselves or not, whether it is a mere accidental coincidence, or whether there is any causal relation between the events, it may be safely recorded as a fact, for it is too obvious to escape notice, that since the Journal has been started, there has been throughout India a growing appreciation of the Hahnemannian reform; at least, a tacit admission is perceptible of the necessity of toleration in matters medical. The professional mind does not, it is true, seem to be much influenced *outwardly*, but in the absence of the acrimonious intolerance that was prevalent a short time ago, and in the adoption (without acknowledgment) of the drugs and almost the doses of the new system, one cannot but see, how thoroughly and deeply has it been convulsed by jealousy at the success, if not by a conviction of the truth, of the system. Though we cannot but regret this state of things, though we cannot but look upon this unacknowledged adoption of the drugs and even the doses of homœopathy by the dominant profession, as a sad index of the extent of prejudice and intolerance, of the depth of ignorance, and of the laxity of conscience, still prevalent in the Profession as a body, we nevertheless hail the fact as herald of the dawn of better days. We say so because we believe that the profession cannot long remain indifferent to its own interests. For it is no longer a mere matter of choice, but daily threatening to become a question of bread. The cry of suffering is too loud, the prospect of death too gloomy, to be subdued and cheered by the consolation that all that science could do has been done. People will not believe that science is the monopoly of an organized body. There is a limit to human patience and forbearance. People cannot afford to suffer and to die, simply out of deference to a profession. And when that profession confesses its own impotency, and pronounces the verdict of incurability or death, are people to be blamed if they fly to other quarters, where hopes of relief or of cure are held out?

Professional men are too apt to charge laymen with ignorance of medical matters and therefore with incompetency to judge of such matters. And certainly laymen would justly incur blame if they were to sit as *professional* judges in such questions. But

the fact, if properly viewed, would appear to be otherwise; it is the profession which passes judgment against itself. When a case, pronounced incurable by the orthodox profession, gets well under a different system, the only legitimate inference from the fact is, either that the former had erred in its opinion, or that the despised, heterodox system has remedial resources which the orthodox had not. And when such cases multiply, what can laymen do than believe that orthodoxy must be gravely at fault? Further, when people find that it is those professional men continue to laugh at the new system who would not give it a trial, but that those, who do try, adopt it,—when people see all this, can they help forming a true judgment on the case? Does it, in fact, require any medical training to form such a judgment? And when people arrive, by the simple exercise of common sense, and from data furnished by the orthodox profession itself, at a correct conclusion in questions of such vital importance to the whole human race, can they withhold their practical support of it, because it is opposed to the interests of a section of the community? The profession will be greatly mistaken if it counts upon this.

We owe a word of apology to our readers for not having fulfilled our promise, of continuing to give the text and translation of *Charaka*. The text we could now easily give, as we have got more than one manuscript to collate from. But as the text without the rendering will not be interesting, and as there has been considerable difficulties in arriving at a correct rendering, we have thought it fit to postpone it till we should find ourselves competent to do so. We can assure our readers, and those who take especial interest in the revival of ancient Hindu works, that we have not given up the idea of enriching our pages with Charaka. On the contrary, we are getting a MS transcribed for us at Benares, and we are getting the celebrated commentary of Chakra Datta transcribed for us also. We are, in fact, trying our best to make us fit for the task we have imposed upon ourselves. And we shall thank all well-wishers of India, if they will render us any service in this direction.*

* To Rájá Prasanna Náráyana Deva, Ráyá Báhádura, our warmest thanks are due for the presentation of a fine MS of the Text of *Charaka* which he kindly got transcribed for us from a very old and, it appears, a very correct, copy in possession of a kavirájá at Berhampore.

PROPHYLAXIS OF CHOLERA.

The subject of prophylaxis of cholera is of the most vital importance to the whole world. The discovery of a cholera-prophylactic would confer greater benefit on the human race, than has even Jenner's discovery of vaccination. Beyond the recommendation of the most vague generalities, as quarantine, cleanliness, and disinfectants, the Old School is entirely silent on the subject. It is to the New School that the credit of suggesting prophylactic *remedies* is due.

According to Hahnemann, *cuprum* prepared after his method (by successive trituration and succussion), "together with good and moderate diet, and proper attention to cleanliness, is the most certain preventive and protective remedy; those in health should take, once every week, a small globule of it *(cup. 30)* in the morning fasting, and not drink any thing immediately afterwards, *but this should not be done until the cholera is in the locality itself, or in the neighbourhood.* The health of the individual will not be in the least disturbed by this dose." Subsequently in a letter to the Editor of the *Bibl. Homœopathique*, he writes, "*Cuprum*, as a prophylactic against cholera, has generally shown itself efficacious, wherever it has been employed, and where its action has not been destroyed by gross dietetic faults, or by the smell of camphor (which is its antidote)." In the same letter he further says, "I have also advised the alternation of these two substances *(cupr.* and *verat. alb.)* from week to week as a preventive against the disease."

Dr. F. F. Quin, the greatest of living English disciples of Hahnemann, and than whom perhaps no one has had more extensive experience of the disease, in his *Traitement Homœopathique du Cholera*, published in Paris, in 1832, recommends the alternate use of *veratrum* and *cuprum* from week to week as prophylactics against cholera and says "that experience has shown that these substances have preserved numbers of persons exposed to cholera." He adds that "this observation ought not to surprize us, if we remember that vaccine, which is in reality a homœopathic preservative, guaranteed safety, during a large number of years, those who were exposed to the variolous epidemic." Dr. Quin advises that during the use of these medicines

it is necessary to abstain from wine, coffee, strong tea, and spices which counteract their action.

Dr. Dudgeon, in his *The Homœopathic Treatment and Prevention of the Asiatic Cholera*, published, London, 1817, says, "it would be wrong to neglect the means which the genius of Hahnemann and the labours of his disciples have put within our reach," especially, "when the means are so simple and efficacious, whilst the cure is so difficult and hazardous." He follows Dr. Schmit in recommending the physician attending upon a cholera patient to take a drop of camphorated spirit, while the same medicine is being given to the patient himself. "The true preservatives however," he says, "*veratrum* and *cuprum* must not be neglected *after* the termination of the treatment of the patient" According to Dr. Dudgeon, the prophylactics that were useful in the previous epidemics might not prove equally useful in the next. Consequently we can determine upon a prophylactic only when we know the actual character of the epidemic, the same rule guiding us in the selection of the preventive as in the choice of a remedy, viz, a comparison of the symptoms of the disease, with the physiological effects of the remedies.

Dr. F. Humphreys in his *The Cholera and its Homœopathic treatment*, published in New york, in 1849, testifies to the efficacy of the alternate use of *cuprum* and *veratrum* as prophylactics, and says "it is the general experience of homœopathic physicians that among those who took the medicines, and were attacked, the disease showed itself in its mildest form, while those who had omitted this preventive treatment, were attacked with great violence." He alludes to the practice of wearing a small piece of copper upon the pit of the stomach that was resorted to in Germany during the cholera, but with what result he cannot say. He thinks camphor far too evanescent in its action to serve the purpose of a good prophylactic. Dr. Joslin in his *Homœopathic Treatment of Epidemic Cholera* repeats the recommendations of Hahnemann, only he advises commencing with *veratrum*, "because cholera oftener requires veratrum." He does not advise the use of camphor, not only because it is too transient in its action, but also because it interferes with the action of other remedies.

There seems to be an unanimity amongst homœopathic physicians as to the prophylactic virtues of *cuprum* against cholera. This

unanimity seems to have been disturbed in only two instances. According to Dr. Constantine Hering: "*The surest preventive is Sulphur*; put half a tea-spoonful of Flowers of Sulphur into each of your stockings and go about your business; never go out with an empty stomach, eat no fresh bread, nor sour food. This is not only a preventative in cholera, but also in many other epidemic diseases. *Not one of the many thousands who have followed this, my advice, has been attacked by cholera.*" (*Domestic Physician.* New York: 1866. P. 248.) We have no means of either proving or disproving Dr. Hering's statement, and we do not know whether any other homœopathic physician has confirmed it or not.

The other instance of dissent from the general belief in the prophylactic virtues of *cuprum* and *veratrum* is that offered by the late Dr. Rutherford Russel. In his *Treatise on Epidemic Cholera* (London, 1849) he says—"We do not look upon cuprum as at all a specific for cholera, but as powerfully curative of one of the most distressing group of symptoms. We cannot, therefore, believe that it will be of much use as a prophylactic against the disease. Indeed, we must confess that we do not think there is sufficient evidence in favour of any phrophylactic of cholera. Of course there can be no harm in wearing a plate of copper next the skin, as some have recommended; but we are inclined to believe that the taking of medicines daily to keep off cholera may have an injurious moral effect, and predispose to the disease. It brings the subject continually before the mind, and suggests the probability of an attack. The fear of cholera goes to such a length in some persons as to deprive them of sleep and all enjoyment of life. In such cases we should recommend the use of prophylactics, but more for the purpose of calming the nervous system than of acting homœopathically in regard to cholera. If we had used any protection when attending patients in cholera, it would have been camphor. We do not think that a person surrounded with a camphor atmosphere could be affected with the disease. We believe its poisonous effects would be immediately neutralized."

We ourselves have not as yet had any experience with prophylactics. We have therefore much pleasure in giving prominent insertion to the following, kindly sent to us by Bábu

Rádhicá Prasanna Mukerji, Deputy Inspector of Schools, Calcutta, as being of the highest importance to all. It is a practical supplement to Dr. Salzer's able article :—

"During the spring of 1865, I believe, while cases of cholera were reported in the neighbourhood of Gosáin Durgapur in Zillah Nuddea and applications for cholera medicines became rather frequent, my esteemed friend Babu Raj Krishna Rai Chowdhari, then residing there as head-master, was led on the recommendation of Dr. Laurie to use copper as a prophylactic against cholera. The author recommends a copper plate to be worn on the abdomen, but my friend simplified the process, and made every one whom he could influence wear a pice as near the abdomen as possible. The practice of wearing *ghunsi* or a bundle of silk or cotton thread round the waist being general in this country, each person got a pice duly bored and applied to his body by passing the *ghunsi* through it. Some laughed at the idea, but many parents adopted the judicious recommendation as it was extremely simple and not at all inconvenient; and the success of the experiment has been tested by 5 years' experience, during which two epidemics of cholera ravaged the place without affecting a single individual, who had invested a pice judiciously as described above. Unfortunately, cases came to my notice on the occurrence of the last cholera epidemic in February and March 1868, in which the precaution had been neglected with the usual disastrous consequences. As far as I can ascertain, there has not been a single case of cholera among persons protected by the copper pice, and I have found the precaution useful in our own family. Children under 12 years largely availed themselves of the amulet with satisfactory results, and I knew also some grown up people who equally benefited by it. Indeed my experience recommends a wider trial of the copper pice as a prophylactic, however incomprehensible may be its operation under such circumstances. The undoubted efficacy of infinitesimal doses of copper in cholera spasm may perhaps account for its action in the foregoing instances."

MEDICAL TOPOGRAPHY.

More than thirty years ago, the late Medical Board, issued a circular calling upon the Medical officers to furnish reports on the Topography and Statistics of their respective districts and stations. The following subjects of enquiry were specified,—1. The situation and boundaries of the place; 2. Rivers, lakes, wells, and morasses; 3. Climate; 4. Soil; 5. Animal, vegetable, and mineral productions; 6. States of agriculture; 7. Roads and communications; 8. Diseases, endemic and epidemic; 9. State of hospitals, with the dimensions of their apartments; 10. Population, with a description of the dwellings, clothing, bedding, fuel, diet, customs, rearing of children, and amusements; 11. Tables of marriages, births, diseases, and deaths; 12. Diseases of cattle and others of the lower animals; 13. Diseases of plants; 14. Census of population; 15. Cause and effect of scarcity and plenty; 16. Condition of the poor and their subsistence; 17. Ways of labour. 18. Physical causes of crime. 19. Rates of mortality; 20. Ordinary proportion of births to marriages; 21. Area of the district; 22. Comparative productiveness of lands, habits of the people, and proportion of Hindus to Mussulmans. How far the call was responded to by the district medical officers, we have no means of knowing. We presume that several valuable reports must have been drawn up, and now must be rotting amongst the dusty records of the late Medical Board, if they had not been already consigned with the things of the past through the instrumentality of moths and white-ants. We would draw the attention of Dr. Murray, the present Inspector General of Hospitals of this province, to the subject, and request him to move the Government to get such of the reports published, as may have been rescued from the destructive agents. It appears that about a dozen of these reports were published at the time; and the great intrinsic value of these leads us to think that the remaining reports should be also valuable and therefore should be made available for public use.

Reports of the kind noticed above having reference to the present time are very much needed, now that the sanitary condition of this country has engaged the serious attention of authorities both in India and England. We acknowledge that the dis-

trict medical officers have now heavier duties to perform than before, and it is for the Government to decide whether they can be reasonably called upon to prepare such elaborate reports as were required by the late Medical Board. But they can certainly undertake to compile a medical and meteorological history of their districts. A voluntary contribution of the kind about Fyzabad from Mr. N. Alcock, Assistant Surgeon, 35th Regiment, has been recently published in the *Medical Times and Gazette*. The paper is a very short one, and is based on observations made during a residence of a little more than eighteen months. A report of this kind to be of material use to the medical practitioners must embrace the observations of some years instead of months, and must be somewhat more elaborate. Mr. Alcock nevertheless deserves our best thanks for what he has produced. For the benefit of such of our professional readers as may wish to record similar observations as regards the station or district in which their operations may lie, we quote below the results of Mr. Alcock's observations. For the purpose of his report, he has allotted to the hot weather of Fyzabad the period from March 15th to June 15th, to the rains from June 16th to the end of the first week in October, and to the cold season from October 7th to March 15th :—

Throughout the three months of hot weather, life is sustained under the following circumstances:- The body is placed in an atmospheric medium heated during the first six weeks to an average daily maximum of 97·9°, and cooled to a nightly minimum of 60·6°, thereby being subjected to a variation of temperature of 37·3° in every twenty-four hours. Each cubic foot of air thus in contact with the surface, and likewise used for respiration, contains 5·2 grains of vapour, which causes it to be a little more than one-third saturated with moisture, its relative humidity being 37·6, complete saturation being represented by 100.

During the succeeding six weeks, up to the advent of the rains, the average daily maximum is intensified by 10° (108·3°), and the nights are hotter by 15½°(76·2°), the mean variation of temperature being lessened by 5°(32·1°). The atmosphere is now one-half saturated with moisture (49·6), and the actual quantity in each cubic foot is increased by 3 grains (8·5).

Such are the conditions, actual and comparative, under which the animal economy performs its functions during that part of the hot weather which succeeds the cold, and during that which precedes the rains, and is influenced by their approach. Of these the latter is the more sickly, and is likewise the most unhealthy period of the entire year. The number

of cases of fever which occur from May 1st to June 15th exceeds considerably the average admissions for an equal time during either of the other seasons, being in the proportion of two to one over a like space during the rains, and five times as great as during an average six weeks in the cold weather.

The admissions for derangements of the liver during this period exceed by one-fourth a like average during the rains (the number treated in June being almost double that of any other month), and surpass by one-half the same average of time in the cold weather. Disorders of the stomach and bowels prevail in the ratio of 3 to 2 over a similar average in the rains, and of 10 to 3 beyond those of the cold weather. It is worthy of remark that these latter affections preponderate considerably during the months of May and July, being the one preceding and that following the month in which derangements of the liver are in excess.

I shall now portray the climatic conditions of the rains and cold weather by the same expressions which I have used to convey an idea of the hot season, and shall then endeavour by comparison to draw some feasible inferences of the causes of the more prominent and important diseases.

During the entire period of the rains, from June 15th to October 7th, the climate remains almost *in statu quo*, the meteorological readings for the beginning of July differing but little from those for the end of September, yet varying considerably from the season out of which so sudden a transition has been made. The average maximum heat is lowered by 13½° (94·7°).

The nights are hotter by more than one degree (77·1°), and consequently the diurnal range of temperature is lessened by 14½° (17·6°). The humidity is increased by more than one-fourth, the air being now more than three-fourths saturated with moisture (77·1), and the quantity of vapour in each cubic foot augmented by more than two grains (10·7). The total rainfall equals 68·4 inches. With the intervention of a neutral period, comprising the last three weeks of October, in which no rain falls, and the air is moist, oppressive, and hot, the change to the cold season comes on almost as rapidly as that from the hot weather to the rains, and this, when fairly set in, is one of the most delightful climates in the world. Its average maximum heat reaches only 81·3°, from which the nights are cooled down to an average of 50·4°. The air is a little more than one-half saturated with moisture, and yet contains but 4·9 grains of vapour in each cubic foot. December and January are of course much cooler than the foregoing depicts; but these figures represent the average of the climate from October to March. Since, then, in May and June, the two most important diseases so remarkably preponderate, we may reasonably infer that in the atmospheric conditions of these months lies the cause of their respective prevalence, and accordingly we find that, coincident with the greatest development of fever, exists the highest average temperature of the whole year, combined with a relative humidity lower than that in any other month, with the exceptions only of March and April, and that, contemporary with the most frequent occurrence of derangements of the liver, there is an average temperature so high as to differ from the foregoing by not quite half

a degree, but accompanied by a relative humidity higher than that of any other month, exclusive of those comprised in the rainy season.

The occurrence of fever during these months respectively being as eight to seven, while twice as many cases of deranged liver came under treatment in the latter as in the former, it is obvious from this, that intense heat is the chief factor in the production of both these affections, and that its power in disordering the liver is augmented by the addition of an excess of moisture.

This tallies with the views recently propounded by Dr. Richardson of the effects of increment of animal heat. In summer this heat is increased, but if the increment is trifling and gradual, it is conveyed away by evaporation of water from the surface and from the lungs, a result brought about by increased movement of the circulatory and respiratory apparatus, consequent upon the increase of heat. But if the increase of temperature is great, or rapid, the whole arterial system, especially the capillary terminations, become contracted, and as the next consequence the secretions from the cutaneous and pulmonary surfaces are checked, water and with it the heat, which should have been conveyed away by evaporation, accumulates in the blood, giving rise to fever with its characteristic dryness. This is the true physiological relation of increased temperature to fever. According to the very judicious remark of Mr. Alcock, the affection produced in the animal economy by increase of temperature chiefly assumes three forms, and has hence received three names, according to its intensity and the time of its accumulation. Thus it is—1. Fever, when the heat is gradual in its accumulation; 2. Heat-apoplexy, when it rapidly reaches a climax of extraordinary intensity, in a person not exposed to the sun; 3. Sunstroke, when developed in one subjected direct to solar rays.

The explanation offered by Mr. Alcock of the greater frequency of hepatic derangements among Anglo-Indians during the hot weather, more particularly in that part of it when the atmosphere is surcharged with watery vapor, appears to us quite in accordance with the recent teachings of physiology, and ought to serve as a warning to those to whom it most concerns. It is now an admitted fact that a large portion of the hydrocarbonaceous constituents of the bile is re-absorbed and serve as heat-fuel in

the lungs. The demand for this fuel is in direct proportion to the rapidity of radiation of heat from the surface and in inverse proportion to the supply of hydrocarbonaceous matter direct from the liver. In the hot weather when moisture prevails in the atmosphere there is in the first instance absolutely less necessity of *animal* heat, and in the second this necessity is the less still when we remember that the radiation of heat from the surface being less, there is accumulation of it in the system. Hence there is less energy of the respiratory process, and therefore less demand for calorifacient agents. But during all this, English habits refusing to make any change in diet to meet the altered conditions, food charged with hydrocarbonaceous matter more adapted for the cold water and colder climates is taken, the lungs get a direct supply of heat-fuel from the liver, the re-absorbed bile-constituents are neglected and they therefore accumulate in the system producing fits of biliousness in the shape of diarrhœa, or even dysentery. When the biline is habitually neglected by the lungs, the biliary secretion becomes more and more diminished, till the liver becomes torpid and engorged. This state of chronic congestion disables it the more from duly performing its functions. The elements out of which the bile is elaborated being still supplied from the primæ viæ, they undergo a less degree of elaboration, and become converted chiefly into fat, a much lower organized material. This is the true pathology of fatty degeneration and fatty enlargement of the liver. The Remedy is obvious—abstinence from hydrocarbonaceous food, and abundance of daily cold bath to keep off the heat.

DISEASE DEPENDENT UPON AN IDEA OR EMOTION.

At the last Annual Meeting of the British Medical Association a very important Paper was read by Dr. Russel Reynolds which was followed by an important but not less amusing discussion. The drift of the Paper deserves to be known and appreciated by the Profession, which is to show—"1. That some of the most serious disorders of the nervous system such as paralysis, spasm, pain, and otherwise altered sensations, may depend upon a morbid condition of emotion, of idea and emotion, or of idea; 2. That such symptoms often exist for a long time, appearing as complicated diseases of the brain or spinal cord; 3. That they resist many different kinds of treatment, being alike unmoved by sedatives and irritants, by attention or neglect, but that they occur independently of anything that could be called either insanity of mind, hysteria, hypochondriasis, or malingering; 5. That they are often, but not constantly, associated with some bodily weakness or general debility; 6. That they sometimes associate themselves with distinct and definite diseases of the nervous centres, so that it becomes very important to know how much of a given case is due to organic lesion, and how much to morbid ideation; 7. That it is possible to make a diagnosis with regard to them in many instances; and 8. That the principles upon which their treatment should be conducted are simple, and their application marvellously successful."

Dr. Reynolds has thus recognized a cause of actual disease which is not only neglected but well-nigh ignored by medical authorities. It is true that a most intimate connection is believed to exist between the mind and the body, or more properly speaking, between the brain and the rest of the body; but the notion is the most vague imaginable. Were it not for such an authority as Dr. Reynolds, the idea, that such grave diseases as paralysis, and other disorders of motion and sensation, could originate in an idea or an emotion, would have been scouted as preposterous and ridiculous. It is true that neither in the cases which Dr. Reynolds has cited to illustrate his points, nor in those which were brought forward at the discussion to corroborate his views, the treatment has not been altogether, what may be called inert, and acting upon the faith and imagination

of the patient, nevertheless it is evident that this latter measure has been mainly instrumental in bringing about the cure.

The diagnosis of these disorders is quite possible, and may be arrived at as Dr. Reynolds suggests:—

1. Upon a consideration of the mode of onset of the symptoms, and especially upon the discovery of an idea which should take possession of the mind, and lead to its own fulfilment;

2. Upon an estimate of the symptoms actually present, and particularly, upon the discovery of phenomena which cannot be explained by what we know of the history of organic lesion. Here I would draw attention to such anomalies as these:—*a*. That a patient cannot raise the heel off the bed, or draw it upwards towards the body, and yet that he or she can sit up in bed, or lie down voluntarily and slowly without assistance, or can turn from side to side without aid; *b*. That this apparently absolute paralysis co-exists with perfect sensibility of skin, electro-muscular sensibility, and contractility; with unimpaired nutrition of the muscles and the skin; and with no sign of disease in the spinal bones; or *c*. That there is absolute inability to maintain the erect position, although there is the possibility of moving the limbs in any direction, and this, without failure of irritability, or nutrition, or sensation.

3. Upon the observation of the effects of treatment; *a*. The absence of beneficial result from ordinary medication; and, *b*. The almost immediate advantage to be seen on the adoption of methods which are directed to the alteration of idea.

The Treatment recommended appears to us to be very judicious, and is described under the following heads:—

1. A real, earnest dealing with the case, as one of grave character, although not of the kind supposed;

2. A confident expression of hope, if certain plans are followed out; and the steady conveyance of this hope habitually to the patient, not only by the physician, but by those in constant contact with the patient. This is, I believe, of paramount importance; and hence it is that much more can be done in hospital than in private practice. Still, sometimes, it is possible to place a patient away from home, with a well-instructed nurse, and so gain the main points of hospital treatment. Thus it is desirable to do whenever it is possible; but sometimes much may be gained by sending an accomplished nurse to the house to take the patient well into her own hands, and out of those of kind but over-anxious friends.

3. Making the patient attempt to walk at once, and at stated intervals with support on each side, the amount of support to be gradually diminished day by day.

4. The employment of faradisation to the muscles, partly as a moral and mental agent, partly as a physical occasion of muscular contraction. It is important to discover the muscles which are the most flaccid and the least susceptible of voluntary work, and to direct especial attention to their treatment.

5. Friction and passive movements of the limbs.

6. Such regiminal, dietetic, and medicinal means as may be required by the special condition of the patient.

We conclude this short notice of Dr. Reynolds very valuable paper by citing a case which we had upwards of a year ago, which well illustrates the fact of disease sometimes depending upon an idea. The case was reported to us as a bad one of asthma. When we first saw the patient, a young female of less than 20, we found her in great dyspnœa, similar to what we find in asthmatics. But on examining the lungs, we could not detect anything abnormal. Another very distressing symptom of the disease was vomiting; she could not retain anything in the shape of *food*. She had been suffering from this disease for months. Some of the best allopathic physicians had seen her without being able to do her any good. We pronounced the case to be one of hysteria. A variety of remedies was prescribed, but that which did her most good was *belladonna*, to which we were guided by her complaining of a heavy sensation in the eyes. The dyspnœa gradually became less, but the vomiting remained intact. She had become very much emaciated from want of nourishment. We tried *nux vom.* both before and after taking food, with only this benefit, that the food would not be immediately rejected, but would be retained a few minutes. We took advantage of the fact that she does not throw up *medicine*, whatever nasty stuff it may be composed of. We accordingly gave her barley in phials from dispensary as medicine. In this way we went on increasing the dose. The first day that we mixed milk with the barley, she suspected and vomited it immediately. Subsequently however she retained the milk and barley, on being assured that it was a tonic medicine which had to be prepared with milk. In this way she gained flesh, and the stomach getting habituated to food, we could gradually give her food as food and not as medicine.

REGISTRATION OF DISEASES.

It is a little more than two years ago that Dr. Mouat urged the need of studying the various endemic and epidemic diseases of this country as a whole in their relations to every part of British India, and recommended the preparation of a medical aide-memoire for all India; and the subject was noticed in No. 2. vol. I. of this Journal. We do not know whether it attracted the notice of our Government; but it is patent to all that various endeavours have been made to collect the facts which are required for such a work. The geological features of the country are being gradually enquired into. The meteorologists of the several local Governments are recording their observations year after year. The Local Governments publish annual reports of Jails and dispensaries, and of the vaccine operations. Besides these there are the reports of the Sanitary Commissioners. It will thus appear that reports without number are annually published by the Local Governments on vital statistics, and a large outlay is thus necessarily incurred. But we doubt very much whether commensurate results are produced. The chief object of these reports ought to be to collect the experiences of the large number of medical officers who are scattered in the country, so as to throw new lights on the diseases which break out in the different localities; so that in the end we might obtain effectual means to prevent, mitigate or arrest them. This object is as yet very far from being realized, and this is owing in a great extent to a want of proper understanding of the exact scheme of Dr. Mouat.

The importance of a uniform system of registration of diseases is now beginning to be appreciated in England. Dr. Philipson read a paper on this subject in the State Medicine Section at the last annual meeting of the British Medical Association; and on the 9th of November a deputation from the joint committee of several medical associations waited upon the President of the Poor-law Board with a view to accomplish the same object. Dr. Philipson's paper was a very able one, as Dr. Farr justly characterized it, and it deserves to be more widely known than it is. It commenced with a notice of some of the advantages to be gained by a close study of the prevalent diseases, more

especially when a methodical system of registration is adopted. Dr. Philipson next drew attention to the manner in which such a system could be carried out with profit. He stated that in this two things were necessary, first, to collect facts; second, to classify and compute the facts that have been collected. In the collection of facts, two elements, he said, were needful—"the assistance and co-operation of the whole available scientific strength, and uniformity in the system of observation, consisting of a simple and easy mode of recording the notes." Again, "in the classification and computation of the facts collected, a properly constituted plan is absolutely necessary, which could be best carried out under the direction of a central authority, independently of the observers of the facts." "The fundamental step for the statistical registration of diseases," he repeated, "must be uniformity in the system of registration." The paper concluded as follows:—

"There exists a national system of registration of the causes of death; so there might be a corresponding national system of registration of the actual cases of disease, which might justly be called 'vital statistics,' and which would indicate the resistance of one portion of the community against disease as compared with another. Undoubtedly the statistics of a single town is instructive; far more instruction, however, will be gained from the compared statistics of various and many towns. In addition, also, it would tend to throw light upon the causes of diseases, on the means of their prevention, and the right understanding of their etology, the greatest reward of the worker in the wide expanse of 'the science of medicine.'"

After the paper was read, Dr. Farr, President of the State Medicine Section, remarked that the most serious difficulty in the way of a national registration of disease was the expense, and he expressed it as his opinion, "that it would amply repay the country for the trouble and expense incurred;" and that, "if the Government would go to the expense, the medical profession would be found quite willing to support them in any effort of the kind."

As regards England, partial endeavours have already been made during the last four years to gain the object aimed at by Dr. Philipson, with such success as to induce the profession to make a national attempt, and the deputation, alluded to above, which waited upon the Right Hon. G. J. Goschen, M. P.,

had exactly the same object in view. We therefore make no doubt but that in a few years uniform registration of disease will be an accomplished fact in the British Isles. As regards India, the facilities for having such a system are very great. As we have stated above, besides the army, there are medical officers and their assistants in every city and town of this country, under state supervision, some having charge of Jails, some of vaccine operations, and some of the charitable dispensaries, while in some places all these duties are entrusted to single individuals. Each of these three divisions is more or less under the superintendence of distinct medical officers of large experience under each local Government. These supervising officers are authorized to instruct their subordinates to collect facts according to one uniform system, they travel from town to town, inspecting the places under their respective charges, and have to prepare annual reports of the proceedings of themselves as well as of their subordinates; so that as regards each local government there is a uniform system and a central authority. But in British India there are at least ten local governments, *viz.*, those of Madras, Bombay, Bengal, N. W. P., the Punjab, Oudh, the Central Provinces, British Burmah, Berar, and Mysore including Coorg. There are thus several central authorities, and there is therefore a lack of a proper uniformity in the system of observation and registration of facts. It is difficult even to ascertain what method is adopted under each local government. A properly qualified guiding genius is required to direct a proper registry of the local observations, and to make a judicious digest and classification of these observations, so as to become a truly valuable source of information to the future practitioners. The Sanitary Commissioner to the Government of India, has, it is true, been recently endeavouring to incorporate into his annual report the most important of the facts collected by the officers of five of the ten local governments mentioned above, but we do not know whether that functionary has satisfied himself that observations are noted in those five governments under one uniform system, that one system of nomenclature of diseases is pursued, and that there is no diversity of opinion as to the definitions of the diseases. It is needless to mention that in case there should exist such differences and diversities, comparisons of

facts and figures will be worse than useless. The different modes of treatment observed should also be fully noticed, with their results.

From all that has been said above it will appear clear that India now stands in great need of what has been termed a national system of registration of diseases, without which the expenses to which our government are being put, would fail to produce commensurate results.

JAILS OF BENGAL IN 1868.

Dr. Mouat is one of the ablest, most conscientious, and most hard-working officers which the Government and the country ever had the good fortune of having. His Reports are always elaborate and instructive, because they are the results of fulness of knowledge, theoretical and practical. The report before us, on the Jails of the Bengal Presidency during the last year, is a particularly good one, and, if we may say so, without any disparagement of its predecessors, is a considerable improvement upon them. It is replete with interesting facts even on the subjects treated of in the previous reports, and it embraces for the first time particulars about criminal lunatics, the castes and classes of criminals, and the grouping of mortality returns on geographical grounds. The connexion between crime and insanity is a very interesting subject for investigation. The facts collected are however too vague and inexact to permit of any attempt at discussion or analysis. The materials collected on the castes and classes of criminals, require yet to be supplemented by further facts, and then the whole must be thoroughly digested before it can become subservient to practical use. The opinion of Dr. Mouat that, a knowledge of the criminal classes is necessary in determining the system of discipline to be adopted in the central prisons about to be established, is quite obvious. As the object of these jails, says Dr. Mouat, is to render imprisonment deterrent as well as reformatory, a more graduated and rigorous system must be carried out in them than is possible in the ordinary jails—hence the necessity for a study of the peculiarities, proclivities and previous history of the most important classes of criminals. It

is this study which has earned for Sir Wm. Sleeman, a name which the world will not willingly let die, and which enabled him to extirpate a class of robbers compared to whom "the Turpins, Jack Sheppards, and other heroes of the English highways are very vulgar ruffians." While on this subject we beg to draw the attention of His Honor, the Lieutenant Governor of Bengal, to the following para. of the Jail report, and hope he will take action upon it :—

"It would be well, I think, now that a beginning has been made, to require all judicial and police authorities to continue to study the characteristics of the criminal classes in their several districts, and to record the results of their study. This will not only gather together a great body of valuable information, but will be of infinite use as a guide to the legislature in amending from time to time the criminal codes of the country."

The geographical grouping of the mortality returns has given rather surprising results, shewing as it does, Orissa, Assam and Cachar to be much more healthy than Behar and Bengal Proper. Perhaps, as Dr. Mouat thinks, a better and more scientific grouping than the one he has adopted may be possible, when a geological map of the Lower Provinces is prepared, and when a better knowledge is acquired of the climates of the districts.

As reformation of the convicts is the chief object of Jail discipline, great attention has been paid to it. To secure this object instructions are given in reading, writing, and handicrafts. Those who are found to be well behaved, are allowed the indulgence of intermediate imprisonment, and some are employed in the internal duties of the prisons. In 1868 each of these classes of prisoners considerably outnumbered those in the previous year.

The statistics about educated prisoners are not quite satisfactory. The number of convicts fairly educated for their position in life in 1868 was 604 against 154 of the previous year, but in the preceding nine years this number varied from 877 in 1860 to 824 in 1866. This information would have been of some value, if Dr. Mouat had given a list of the crimes for which these men had to undergo imprisonment.

The financial results of the year are very encouraging. The net income was Rupees 5,73,200 against an expenditure of Rupees 12,29,30,857, being about 1-5th in advance of the previous

year while the expenditure was reduced by about 3-5ths. The average net cost for a prisoner was Rupees 34 per annum. The Jail at Alipore was self-supporting, and five others earned enough to cover the cost of their prisoners' maintenance.

The most important part of the report so far as this Journal is concerned, is that which treats of Vital statistics, and which occupies about ⅓rds of the volume. We are inclined to think that this portion is susceptible of considerable improvement. The total sickness of the year however exhibits a decrease, as noticed above, owing to a diminution in the severity of zymotic diseases. There was also a fall in the number of daily sick. The death rate is 5·05 per cent., against 5·88 per cent. in 1867. The actual gain in weight of each prisoner was 15 against 5 chittacks of last year. The accounts given of the medical histories of the several Jails are defective. They must contain greater details; the method of treatment pursued in the cases of diseases amenable to cure must be given; and the causes of the unhealthiness of many of the Jails must be carefully investigated. It was at the close of the year that the professional supervision of the jails was delegated to Dr. Mouat, and their executive management transferred from Magistrates to Medical officers. As regards these points therefore we anticipate considerable improvements in the next report. The general result of vital statistics was summed up in the following para:—

"There is not at the present moment a single disease that is propagated by contagion in the prisons under my charge. Hospital gangrene is a thing of the past, scurvy nearly unknown, and small pox easily controlled. Cholera which is so susceptible of extension in unfavorable circumstances, is comparatively moderate in its ravages, and has not assumed even an epidemic character in some of the most important prisons under my charge, while it has been epidemic and destructive in their immediate vicinity. No fact indicative of contagion was established in the outbreaks of the year."

In the report under notice, Dr. Mouat has collected a vast array of materials and opinions on the outbreak of cholera in the Lower Provinces of Bengal. These facts have tended only to confirm him the more in the views he has all along held on the subject, and which were noticed in Vol. i. of this Journal. These views have been summarized in the following paragraph,

which his cholera records of the past year fully warrant him to adhere to :—

"So far as they go, these records seem to show that 'cholera is not contagious in the sense in which small pox, and typhus are commonly called contagious;' that although the poison may be carried in the human system, and propagated by human intercourse, it needs the co-operation of local circumstances for its epidemic extension; that it is easily arrested in the premonitary stage, but becomes unmanageable in proportion to its advance and intensity; that simple separation, and great attention to the immediate deodorization and removal of all excreta, are the chief prophylactic measures necessary to apply to prevent the communication of disease; that the attendants upon the sick incur no additional risk of acquiring the disease; that such quarantine measures as were tried were ineffectual; that the disease originated in the jail more often than it was imported from without; and that the occurrence of the outbreaks could not be attributed to any particular atmospheric condition."

Besides Cholera, Dysentery, Diarrhœa, Fever and Phthisis are the principal diseases which cause the greatest number of deaths in jails. Diarrhœa made less havoc among the inmates of prisons last year than before. As to fever, although it has proved to be the most destructive of all disorders for several years past, with the outside population in some districts, it 'has never played an important part in influencing the death rates of the jails of Lower Bengal, and has never become contagious in them.' No attempt has been made to explain so startling and at the same time, so important, a fact. We hope this subject will engage the serious attention of Dr. Mouat. If he can find out the real causes for the comparative exemption of jails from this scourge, he will confer a great benefit upon the civil population. This subject has failed to attract the notice of the Lieutenant Governor.

Dr. Mouat takes a great deal of pains every year to exhibit the mortality in jails in relation to months, seasons, length and locality of imprisonment, diet, labour, weight gained and lost, age, crime, sex, religion and punishment. We doubt very much whether these tables, as they are now prepared, will ever be instrumental in drawing any general inference of practical utility, and this the Lieutenant Governor has already noticed as regards one of them. To make these tables really useful, we think that Dr. Mouat should add another statement shewing the names of the deceased convicts, the

names of the jails, dates of admission to the jail as well as to the hospital during the last illness, disease, age, caste, sex, religion, dates of death, occupation prior to imprisonment and at the time of death, crime, sentence, and any other general remarks which might occur to the medical officers. The statement will scarcely occupy more than 20 pages of the report, but it will considerably enhance the value of the statistics which are hitherto furnished.

We have one more remark to make. In the report of 1867, Dr. Mouat devoted a considerable portion to a description of the efficacy of the cellular system. Mr. Howell, Under-Secretary to the Home Department made a rather violent onset on the position taken up by the Doctor. Dr. Mouat attempted a brief refutation of it in his lecture on 'crime, criminals, and prison Discipline in Bengal,' and we fully expected him to resume the subject in his report of 1868. We have been sadly disappointed. He has repeated however his general opinion on the cellular system in the paragraph on the classification of criminals. The subject is so important and there are such misunderstandings that we hope he will make it clear by his lucid statement of the facts on it.

We will now offer a few remarks on the Lieutenant Governor's review of the report. Some of the hints thrown out by His Honor are very suggestive, and some shortcomings of the report have been very judiciously noted. But a few of his remarks seem to be far from cogent or just. His Honor complains, wrongly we should think, of the very unwieldy and inconvenient size of the report of this year, attributable mainly to the inclusion of two very lengthy appendices treating, the one of the castes and offences of criminal classes throughout Bengal, the other of the cholera outbreak of 1868. We do not see how these appendices could have been omitted. They treat of such important subjects, that the Report would have been devoid of scientific value without them. Dr. Mouat has well said :—"Some exception has been taken to the extent of the statistical information brought together in my reports. I have the satisfaction of knowing that it has been approved by the Registrar General of England, by the War Office Sanitary Commission, and by the Secretary of State for India."

The inference drawn in para. 6 from the facts and figures given about the reconvicted prisoners that 'they seem to indicate the gradual growth of a criminal class,' is any thing but legitimate. Dr. Mouat has been able to collect the facts of two years only. Remembering how very treacherous mere figures of two or three years and sometimes even of several years prove to be, in the matter of deduction of inferences, we think we must wait for several years, before we can think of hazarding such a general opinion.

Again in para. 30 His Honor has been led to the common error of confounding the sickness and the mortality returns. A little consideration might have shewn him that the former is a much safer index to healthiness than the latter. Dr. Mouat has made out a good *prima facie* case, as to the deleterious influence of the great Chollun Bheel (a vast sheet of putrid water in the Zillah of Rajshahye) upon the health of the villages round it. A mere denial of this cannot satisfy the public. The Lieutenant Governor should have published his reasons for his belief to the contrary.

Lastly His Honor states that juvenile reformatories and the castes and classes of criminals have little connexion with the administration reports on jails. This is indeed a very singular opinion. These subjects are closely connected with the repression of crimes, and ought by no means to be omitted from jail reports. One great use of their appearing in these reports is that they will attract public attention. If they are dealt with in separate reports, as His Honor suggests, they will be placed completely out of public sight.

We now bid for the present a hearty farewell to Dr. Mouat, and offer him our best thanks for the very excellent report on the Bengal Jails, and for the variety of interesting particulars which he has gleaned after patient researches.

M. DUMAS ON THE PROPHYLACTIC VIRTUES OF CUPRUM IN CHOLERA.

By Leopold Salzer, M. D.

The remark lately made by M. Dumas, the celebrated French Chemist, at a meeting of the Academie des Sciences, to the purport that workers of copper-mines have, at different periods of cholera epidemics been spared from choleraic attacks, is no novelty. Only a few years back a similar remark was made with regard to the Brass-workers and copper-miners of England. This does not detract from the interest attached to M. Dumas' statement; for whatever it may lose in point of novelty, it doubly gains with respect to its reliability. It is true, M. Dumas has based his statement upon statistical facts, showing on the one hand, that the per centage of choleraic attacks amongst the above-mentioned class of people is trifling in comparison with the prevailing course of the epidemic, and on the other, that even amongst those attacked, the mortality forms a small fraction only of the death-rate of those situated otherwise; nevertheless facts, and especially strange, almost marvellous facts, can hardly be too often confirmed, in order to gain ground and reliance.

The entire oblivion into which a similar observation was allowed to fall, within the space of only a couple of years, so as to make M. Dumas' statement appear as something yet unheard of, is however worth some notice. Has it not the appearance, as if certain natural phenomena are subjected to the same capriciousness which governs most of our social conventions, and often places too much value and dignity upon some individuals, while others of no less merit and value are allowed to pass without notice and consideration? Volumes have been written as to how to treat and how to meet cholera preventively; every possible means has been contrived, every possible remedy has been proposed and put to the test; and when one or the other drug has been found to be of any benefit in one or the other case, the thinking medical world would not stop there, but would go on investigating the philosophy of its action, its *modus operandi*. But when Nature points, in an unmistakable

way, to a metal so eminently possessed of the power of preventing cholera, the phenomenon is looked at as a matter of curiosity, and hardly more than a momentary notice is taken of it!

There have been, it is true, some attempts made to introduce the above-mentioned metal as a cholera remedy in some shape or other and the result was—a failure. What are we to conclude from that? that Nature is in contradiction with herself? or that her indications have rather been misinterpreted by those who attempted to make use of them?

It would be injudicious indeed, in practical life, to take a hint in a certain affair from one we think wiser than ourselves, and then to execute the meaning and tendency of that hint, not in the spirit of the adviser, but in our own, avowedly less experienced way. Still this is commonly the mode in which the wise hints of Nature are attempted to be carried out in the practical proceedings of Medicine. An illustration of this kind was lately given in this Journal. (Vol. II, No. 3, under Review *of the Indian Annals of Medical Science.)* A medical man of Assam had remarked, that the natives living in the vicinity of the petroleum springs there, are comparatively free from fever, while those living beyond their influence, suffer severely. He therefrom quite arbitrarily jumped to the conclusion, that the theory as to the cause of malarial fever being spores of a fungus, finds a probable support in the above fact, and consequently administered to his patients, by the way of experiment—what? Petroleum? No; he administered: Sulphite of Soda and similar remedies! The *result* of the experiment, we are informed by the Doctor, was a failure; that the experiment in itself was nothing less than a failure, he has forgotten to tell us, if it ever struck his mind.

We meet with somewhat similar examples of trial with a copper preparation as a preventive against, or a curative in cholera. What can we reasonably learn from the cholera preventive properties of copper-mines?—Before all, that copper is not so inert a body, with respect to its surroundings, as it would appear at first sight; and secondly, that the peculiar action of this metal is capable of warding off a certain assailing morbific agent (cholera), without inducing, by all this

its eminent influence upon the human organism, any hurt in the same. For, be it noted, copper-miners have never been known to suffer from any peculiar kind of affection, ascribable to the influence of this metal. There may be some inexactitude in the above second conclusion arrived at; for it may be—and we shall see further on that such an explanation has actually been brought forth—that the metal in question has nothing to do whatever with the human organism, but interferes, by its presence, either with the cholera agent itself, or with those conditions which generate that morbific agent. Still this does not alter the above argument in its main point, namely that there are means, or at least one means, by which the neutralization of deleterious effects is realized, without subjecting the individuals concerned to any sensible alteration, and that that means consists in the simple presence of copper, or more exactly speaking of copper atoms; be it, because cuprum cuts off the deleteriousness of the effect or the effect of the deleteriousness.

The homœopathicity of cuprum to cholera in general has recently been denied by some authors, on theoretical grounds. There is however this unanimity amongst practitioners, that it is the most reliable remedy in cramps attending cholera. "It is true," says Hempel, "the sulphate of copper in one case, caused cramps in the calves and toes, such as we see in an attack of Asiatic cholera; but the alvine evacuations are of a dysenteric character; in the few cases, where liquid stools took place, they seem to have been of a critical nature, attended with relief rather than causing prostration." Hahnemann, in the pressure under which his prescriptive circulars have been issued, has not left us the reasons which induced him to recommend cuprum as eminently homœopathic to cholera; how little however he intended to rely upon the action of this metal with respect to the alvine evacuations, is proved best by his having, against his general principle, alternated with it, Veratr. Alb. When we remember that in cholera proper, we have not only to attend to the vicious state of the blood, manifesting itself by the characteristic alvine discharges; but also to the spasmodic state of the capillaries, thereby considerably interfering with the circulation of a blood, which on the other hand is continually subjected to a drainage of its liquids and consequently to a

gradual loss of its fluidity; when we further remember that this spasmodic state of the blood-vessels (be it a mere consequence of the vitiated blood, which affects its channels, or a primary effect of the cholera poison) may be most likely looked upon, as the beginning of the following muscular spasms: we shall certainly find more reason and homœopathicity of cuprum with regard to cholera, even before actual spasms have set in, than some authors are inclined to recognise, and we shall further understand, how the conjoined action of cuprum and veratrum is the true homœopathic resultant in the second stage of cholera. Leaving even this consideration aside, there would still be a strong reason for the application of cuprum as soon as veratrum is eminently called for. We know that this last remedy gradually ceases to be homœopathic in proportion as cramps become more and more prominent; we know on the other side, that cholera tends to produce more or less severe cramps. Why then wait with cuprum till the stage of spasms has actually set in, and not administer it, were it only as a mere preventive, alternatively with that remedy (veratr.) which suits best the pre-spasmodic stage? Of what use would be to us all our pathological knowledge, if we refused to have our eyes open towards the tendency a disease in its natural course is most likely to take? It is true, the best means to prevent the consecutive stage of a disease is, to attend to its forerunner. But this ought not to determine us obstinately to wait till the last moment, especially in diseases like that in question where the stages so easily run into each other.

Truth has the privilege of verifying itself, from whatever side we may be called to test its veracity; and so we are led to the remedial virtue of cuprum in cholera, when considering the one as well as the other from quite a different point of view.

It is an established fact that copper, like platinum and some other metals, in a state of fine division, has the faculty of absorbing large quantities of ozone. On the other hand, there are numerous facts on record that in localities invaded by cholera, the amount of ozone in the atmospheric air is reduced in quantity, or what seems almost the same, the electric state of the atmosphere is negative. Copper when administered in a finely divided state, might then act as a

functional remedy, as a bearer of ozone, thereby absorbing when circulating with the blood, a larger amount of ozone from the inspired air, as the blood itself would be capable of, and transmitting the same to the blood.

This is the way in which Nature administers her prophylactic. And now comes the man, the Doctor, who tries, by artificial means, to utilize the hint given to him by Nature. Does he attempt to carry out the tendency of that hint in the spirit of his avowedly superior master? Imbued with the strong idea that drugs if internally administered for curative or preventive purposes, must be given in such quantities as would produce in the healthy an effect short of poisoning or half-poisoning, he prescribes his grain doses of copper preparation. Nature revolts against it; the individual thus subjected to the prophylactic course protests against it; he has griping in the bowels, asthmatic breathing, twitching in the limbs: but then the Doctor with his usual authority gravely steps in and holds a most remonstrative language to that rebellious Nature, giving her to understand that if she will not learn to behave better, he will have to do away with her altogether. As to those individuals anxiously seeking a preventive against the raging cholera, let them take opium pills. It is true, statistics have not yet taught that opium-eaters are more protected than the rest of mortals; but then, since cuprum *cannot* be administered; since we cannot, on the other side, convert the inhabitants of whole districts into brass-workers, nor does it lie in our power to transform their houses into copper-mines, we must recur to something else. Since cuprum cannot be administered! In that massive form you are accustomed to bestow your remedial or preventive agents upon your patients, certainly not. But whose fault is it, that you cannot part with the idea, that, with respect to the therapeutic or prophylactic property of a drug, one grain goes farther than a part of it, simply because a large beefsteak goes farther than a small one? Have you ever tried to administer your copper preparations in such minimum doses, as not to molest your patient with any of the toxicological symptoms of the metal? Nature most likely effects her prophylactic work through invisible and almost imperceptible atoms of copper; surely, the attempt to follow her as strictly as possible,

ought to have been worth a trial. But there is the bugbear of an infinitesimal which frightens our grand medical *esprits* and puts them to flight, and we stand, generally speaking, in our days, much at the same point as we did half a century ago, when Hahnemann wrote: "The poisonous effects of this metal (cuprum) and its preparations, and the cruel and frequently fatal symptoms resulting from its application, have prevented physicians from using it internally. Homœopathy alone is capable, by means of the peculiar mode of preparation to which it subjects remedial agents, and by means of its doctrine of the degree of potencies, to employ even the most violent substances for the benefit and restoration of the sick."

The following extract from Dr. Grauvogl's (yet untranslated) "*Grundgesetzen der Physiologie, Pathologie und Homœopathischen Therapie*" may here find a convenient place:—

In order to determine, as far as measurable, the sphere of molecular action, and in how far the mutual distance of molecules pertaining to a body, would alter their inherent forces, Professor Jolly of Munich made and delivered the results of the following experiments, before the Royal Academy of Sciences, in the year 1857. He subjected different solutions to a gradual process of attenuation: amongst others, a solution of Saltpetre. "A solution of 12·0113 per cent and 0°, has been attenuated, by successive additions of distilled water of 0°. After having added to 1000 cub. cent of this solution freed from air, 1257·8 cub cent of water, equally freed from air, a contraction of 21·26 cub. cent took place. That contraction is the total expression for the obtained condensation, and amounts to 21.26-2257.8=940-100000th of the original volumes

The force required hereto, which force is evidently the expression of the molecular action of the solution on the molecules of the water, may be approximatively judged by the compressibility of the water. The pressure of one atmosphere produces a reduction of the volume of the water, equal to 51-1000000; in order to produce then a volume of reduction of 940-100000, 184 atmospheres were required.

If to the already attenuated solution, 4327.6 cub cent. of distilled water be added, a further contraction of 15 cub. cent. ensues; and when to this, 24311.6 cub. cent. of water are added again, a contraction of 13 cub. cent. ensues again. We find the co-efficient of contraction of this solution, by dividing the number of cub. cent. representing the contraction, obtained at every attenuation, through the total sum of the volumes. Thus—

Co-efficient of Contraction.

1st Attenuation	...	21.26-2257.8=940-100000;
2nd "	...	15-6585.4=228-100000;
3rd "	...	13·30897= 42-100000;

The amount of pressure necessary to produce such a contraction is obtained, expressed in atmospheres, by dividing respectively the above co-efficients, through the pressure of one atmosphere, equal to 51-1000000; thus—

490-100000: 51-1000000=184;
228-100000: 51-1000000=44.7 and
24-100000: 51-1000000=8.0.

To convey a clear notion about the immense force working in these attenuations, we need only remember, that a barometer column of mercury stands at 27.428 when under the pressure of one atmosphere, and that, as Pouillet says, when water enclosed within a cannon, the walls of which are 3 inches thick, be subjected to a large amount of pressure, the cannon will burst before the water could be reduced to 19-20 of its original volume.

The above inference with regard to molecular force, might, at first sight, be found fault with, by some of our readers. Commonly, the phenomenon of contraction of volumes, taking place in some mixtures of different liquids, is explained by the gliding of the molecules of one liquid into the molecular interspaces of the other.

Considering the above reduction from this point of view, the same would by no means lend itself to prove the molecular *force*, as compared with pressure. For in the last instance, the mutual repulsive force of molecules (of which the interspaces or pores are the consequence) had to be overcome by a counter-force, tending to approximate those molecules; whereas in the above example, reduction of volume would appear to result, not from any force at all, but from a simple state of fluidity, by which means a vacuum is partially filled up.

Nevertheless, Dr. Grauvogl's argument stands unshaken, with respect to the analogical proof of the *efficacity* of the so-called infinitesimal doses made use of in Homœopathy. What professor Jolly's experiment unquestionably proves, is this, that saltpetre in its fifth to sixth decimal dilution, still produces an *effect* (never mind by what means) which, in order to be attained by mere counter-force, would require a pressure of 8 atmospheres. For the homœopath has never pretended that his attenuations homœopathically selected, have the same *force* of subduing a diseased state, as massive doses antipathically administered; all he maintains is, that his attenuations when properly selected, will attain the same, often even a higher

degree of, curative *effect*, just as 1-100000 of a grain of saltpetre in the above experiment, produces a volume-diminutive effect upon water, for the attainment of which an unskilled man would have had recourse to the forcible means of a pressure equal to eight atmospheres. When a man suffers from colic, the allopath would administer his opium, in order to relax the muscular coat, that is, he would try to counteract the spasmodic action of the intestinal muscles; the homœopath prescribes his sixth dilution of *colocynth*, or according to circumstances, some other homœopathic remedy; he is not prepared to maintain that there is any counteraction brought on by his minimum dose; all he maintains, and this he is prepared to prove, is, that in compliance with the law of similars the *effect* of his minimum dose will be just the same as if the morbid action would have been neutralized by a direct counteraction. Is the idea so monstrous as not to be worth a trial? or is the assertion so illogical as to be off-hand condemned?—Perhaps it is; but then, to use a phrase of Kant, the common phenomenon of bodies being endowed with the faculty of moving, would have been *a priori* pronounced a mere impossibility, had not experience taught us otherwise.

One can hardly read M. Dumas' report, without being involuntarily reminded of Hahnemann and his doctrine. So far back as 1832, when cholera made its first invasion in Europe, he, before having ever seen a case of cholera, from the mere description of the disease, pointed at once to cuprum as one of the principal prophylactic and curative agents. Solely guided by the pathogenesis of this metal, conjointly with his known therapeutic principle, he felt so sure of its remedial virtues in the approaching epidemic, that he did not hesitate to issue circulars amongst his friends and disciples to this purport, recommending them the above-mentioned metal as one of the weapons against the threatening enemy. Thirty-seven years have past since then, during which period many sad experiences and experiments have been inflicted upon mankind by repeated out-breaks of the epidemic on the one hand, and by the ignorance of the medical practitioner at large on the other; and now comes M. Dumas, a man quite uninterested in the therapeutic quarrels of the Doctors, and unintentionally confirms the predictions of Hahnemann!

There are only two means by which men can become qualified to foresee coming results; the one is comprehensible to all, and therefore *recognized* by all, and that is by means of science: the other comprehensible to no one, and therefore only *believed* by some, and that is by means of prophecy. Unless you admit then, that Hahnemann had something to do with divine inspirations, you are reasonably forced to acknowledge the scientific fundament of his principles.

The very history of Homœopathy with respect to the treatment of cholera is appropriated to open the eyes of her adversary for the better, had they only not taught themselves to use their sight, occasionally, not to see, but to overlook facts. Whenever homœopaths appeal to statistical results in order to show the superiority of their system of treatment in cholera, our noble-hearted brethren of the Allopathic profession have two objections to make. Before all, they say, your cases are "cooked." (Our patients, whenever they part with life, may take the consolation, that the atonement which undoubtedly awaits them, in the shape of an eternal purgatory, for having given themselves to such a sinful treatment as Homœopathy, will not be so severely felt, since they have been duly prepared and "cooked" in life time.) And when figures begin to speak too loudly, they resort to another, more reasonable and more honorable subterfuge. "Epidemics," they say, "have their periods of more and less virulence; at the first outbreak they are generally most virulent, and no plan of treatment will be of avail; while at their decline they are not only reduced with regard to the numbers of attacks, but also with regard to their severity, so that almost all cases occurring at that period will spontaneously recover. Statistics therefore are no proof, as long as they want us to be satisfied with an average result, without reference to the period of the epidemic at which those pretended successful results have taken place." To this a German writer lately added the following illustration: "When cholera is breaking out within a community, people naturally recur to the rational system of Medicine; seeing the same fails in arresting the number of deaths, homœopaths are called in. Meanwhile the epidemic begins to decline, and the small globules seem to do great wonders indeed. Let us however change

place, and the result will be as superior on our own side." An impartial look at the history of Homœopathy with respect to cholera will however show, that the first rencontre this system of treatment had with the last named epidemic, took place at the very moment of the outbreak The homœopaths at that time stood prepared to await the assailing enemy

The connection of the positive or negative state of electricity with the surplus or deficit of ozone, on the one side, and of the absence of ozone with choleraic phenomena on the other, was first demonstrated by Professor Horn of Dresden. He brought in communication, by means of a metal wire, the conductor of an electric machine when in rapid rotation with a glass of water; the water was ozonized and emitted the smell so peculiar to ozone All that is required in this experiment is a large electric machine, the glass-plate of which is to be of at least three feet diameter When on the other hand, the negative wire is brought in communication with a quantity of water, the same will, when chemically tested, be found to contain cyanogen, its smell is peculiar and quite different from that of ozone On smelling it too often, or on drinking even the smallest quantity of it, one experiences instantaneously choleraic symptoms succeeded by *cholerine*. The surest means to arrest these artificially produced symptoms, is the use of the ozonized water. Dr. Macnamara in his "Treatise on Asiatic Cholera," recently published, denies the influence of the atmospheric state with reference to the amount of electricity and ozone it may contain, on the generation of cholera His principal reason is, to use his own words, that we have no evidence at all in favour of such views. The opinion to the contrary arrived at by the Committee for Scientific Inquiries under the co-operation of Mr Glaisher of the Royal Observatory, in 1854, according to which "high barometric pressure, excessive night temperature and hazy air, with absence of wind, of ozone and of electricity" made up the marked meteorological characters, which rendered the seasons of cholera in 1854 and previous years defective in those atmospherical changes necessary to renew the air—is considered by the author, as far as electricity and ozone are concerned, as purely hypothetical. In the above quoted

experience of Dr. Horn there seems however to be strong evidence to the contrary. The author has rightly objected to any opinion, having no other ground than the authority whence it comes. Facts alone are to form the basis on which scientific opinions ought to stand. I beg therefore leave to refer the able author, not to Professor Horn, but to Professor Horn's *experiment*. The great labor and care he has so successfully spent upon the etiology of Asiatic cholera, will no doubt prompt him to give the above experiment a fair trial, and—let us hope—to publish its results.

I am not aware, if, and in how far, the above experiment has been utilized for therapeutic purposes; a trial should be made in this direction, if it has not been made as yet. This therapeutic experiment might become the more interesting, as it would give us the means of testing the comparative value of Allopathy and Homœopathy; the ozonized water representing Allopathy, the cyanogenized water, Homœopathy. But is there not something of the kind in our administration of hydrocyanic acid, after our camphor, our cuprum, veratrum and arsenicum have failed?

Taking together the above stated virtues of cuprum with respect to cholera, they would appear to be contradictory with themselves. For while we hear from one side, that the above metal is homœopathic to cholera, *i. e.*, is capable of producing in the healthy a morbid state similar in some respect to cholera, we learn from the other side that this very metal possesses qualities, capable of warding off those conditions which generate, or contribute to generate, that very same disease; in other words, we have here the curious example of a drug, the pharmacodynamic action of which represents the right opposite of its functional action. This apparent physiological anomaly will find its due consideration on a future occasion.

REVIEW.

Report on the Drainage and Conservancy of Calcutta. By D. B. Smith, M. D., Sanitary Commissioner for Bengal.

(Concluded from last No., p. 372.)

THE advantages of Mr. Clark's Scheme Dr. Smith reduces to the following heads, under each of which we shall offer our own remarks :—

1. "It is meant to remove the *present system* as much as possible." No doubt this is an advantage and a very important one too. But the question is, could it not be purchased at a much less cost? Could it not be got without all the *disadvantages* we have enumerated? It appears from Dr. Smith's own showing, that the evils of the present system are chiefly, if not altogether, due to the want of proper enforcement of conservancy laws. The present abominable condition of the existing sewers would be infinitely improved if the solid excreta were not thrown into them, if in fact, the *separateur* system were rigidly carried out, and if in addition, the drains were thoroughly repaired.

2. The second great advantage of the Scheme arises from its leading the drainage into its *natural* basin, and not in the opposite direction. This should no doubt be the guiding principle of all Drainage Schemes. But this advantage would be greatly marred, as we have seen above, by mixing the sewage with the drainage.

3. "The drainage outfall will be constant and not intermittent." We have nothing to say against this, because this is really and absolutely an advantage. The great danger of intermittent drainage arises from the fact of occasional stagnation allowing the soil to be soaked with sewage-water. But the most serious question is, would the promise be fulfilled? Would all the parts of the system of sewers be so flushed, as to allow of a continuous current? Would not sinkings take place and thus interfere with a continuous flow? Would not the capillary drains get choked up and become reservoirs of the most dangerous and morbific products?

4. "The water service will be abundant, diffused and constant, rendering the system independent of all artificial flushing direct from the river." This is not a direct advantage of the drainage scheme as was originally contemplated by Mr. Clark; this is an advantage which his scheme derives from the water-supply scheme. We have no doubt that without an abundant water-service as will now be available, Mr. Clark's scheme would well nigh have been a failure

5. "The quantity of water will be sufficient to ensure the sewage being in a properly fluid state, and to obviate stagnation." Admitted; but will not this increase the volume of the sewage enormously, so as to be beyond the capacity of the area intended to be reclaimed?

6. During the dry season the engine power will be quite equal to ensuring a continual outfall; during the rains the storm-waters will do that duty. We are quite willing to believe this as to the large drains; but we question, as we have done over and over again, if the capillary drains could be at all influenced.'

7 and 8. "The out-fall is not in the direction of the prevailing wind. The original out-fall was at the end of the Belliaghatta canal; it is now at Tengra." This only changes the locality of the evil. Calcutta probably is safe, but what of Tengra and its neighbouring places?

9. "The entire system is a covered one and not open." This would be an advantage without the water-closet system intended to be introduced. With it the Drainage system would be the greatest nuisance imaginable. At present the open drains are nuisances locally; the closed drains will be a general nuisance, the gases developed from the putrefaction of their contents would be diffused throughout. In the hot season this will be particularly so.

10. "If the reclamation of the Lake area is effected, Mr. Clark's drainage system will be the means of establishing most useful irrigation, whereby a now barren and unhealthy tract will be profitably cultivated." Dr. Smith has no doubt on the subject of the proposed reclamation. The thing is a necessity and must be carried out somehow or other. We ourselves believe as to the necessity of this reclamation. We do not know how Calcutta

can be otherwise saved. The filth and the dirt that are the natural products of living beings cannot be allowed to be accumulated in the City itself; they ought no longer to be allowed to pollute the stream on which it stands. Where then are they to go? They must be disposed of, and we do not see a more suitable locality where this can be effected than the Salt-Lake area. But this area should not be made the simple receptable of all this dirt and filth. In that case it would be a terrible nuisance itself. The only alternative is to utilize the sewage for agricultural purposes, by which not only its virulence will be conteracted, but it will be made to give us a profitable return. We strongly doubt, however, if the state in which the sewage of Calcutta is intended to be conveyed to the lake area, will be at all suitable for the purpose. We believe the arrangement is the worst imaginable. We are afraid the quantity of the daily outfall of the liquid sewage will be enormously out of proportion to the capacity of the area in question. This would not be the case if the sewage were conveyed in the solid state.

11. "Lastly in Mr. Clark's own words: 'The sub-soil water which now saturates the site of the town, will be drawn off, damp habitations become dry, and an amount of salubrity obtained which these localities have never known.'" Dr. Smith very justly regards this as the conspicuous merit of Mr. Clark's scheme in a hygienic point of view. "If it accomplished nothing but this, *the sub-soil drainage of Calcutta*—it would be worth all the money that has been or is likely to be expended on it." Certainly, if it could be proved that the same thing could not have been effected at a much less cost. We have not the least objection to Mr. Clark's scheme as a system of *Drainage*. We would urge with all the weight in our power the construction of under-ground drains, and we believe if they are simply to act as drains they need not be so elaborate, nor so deep and large, nor so numerous as those now in process of making; and consequently we believe they will not be so enormously expensive as the present system.

All our objections to Mr. Clark's drains are based upon the fact of their being intended to convey sewage as well. We have always looked upon this as the greatest mistake in any drainage scheme, not only in a sanitary, but we believe even in a financial point of

view. We urged this in our article on the Drainage of Calcutta in the number for June, 1868; and we must repeat here all that we said on the subject with all the emphasis in our power, as we are thoroughly persuaded that the mistake under consideration is fraught with especial danger in a tropical climate. Nature has warned us, by the formation in her higher organizations of distinct channels for the conveyance of the liquid and the solid excreta, never to commit the fatal blunder of mixing sewage with drainage. And by the example of the carnivorous animals whose instinct leads them to cover their excreta with dry earth, she has further taught us the best method of dis-infecting and de-odorising our excreta. And when repeated experiments have shown us the soundness of the method, why should we neglect to take advantage of it?

We are glad to find ourselves at one with such authorities in sanitary matters as Drs. Chevers, Farquhar, Moore, Cornish of Madras, Edward Goodeve, Mouat, and Fawcus, all of whom have declared very strongly and decisively against the liquid sewage system, and in favor of the dry-earth conservancy. The only medical authorities who are in favor of Mr. Clark's Scheme are Drs. Macrae and Brougham, according to whom, the dry-earth system is utterly impracticable for Calcutta. But Dr. Smith asks the very pertinent question—"What might not have been done on the dry-earth principle for a *million pounds sterling*, which the present system will have cost before it is finished." Dr. Fawcus has come forward very strongly in favor of the dry-earth conservancy for Calcutta. He very justly pleads for the entire separation of the solid from the liquid excremental matters and recommends the system in operation in Indian Jails, only so far modified as to suit the peculiar position and requirements of Calcutta. Thus he proposes that the excreta, instead of being *thoroughly mixed* with earth from the first, as is being done in our Jails, be only covered with a superficial layer of dry-earth "to prevent the escape of unpleasant gases during transport," and removed in this state with as little delay as possible to the fields where they are to be used as manure. He recommends the cultivation of plantains, and believes that the whole night-soil of Calcutta could not only be thus disposed of, but may be made to yield an annual income of 3 lacs of rupees! His recommen-

dations are so sound and at the same time so simple and easy of application, that we present them to our readers in his own words :—

"Fortunately, only the very simplest farming operations are required. If this were not the case, the municipality would probably fail in executing them. The cultivation of bananas requires little or no knowledge of farming, and very little labour or care ; all that has to be done is to plant in rows, and to manure well the interspaces. Large plantations of these have recently been formed in the jungles of the Soonderbuns. They grow well in the recently reclaimed land, and have yielded magnificent harvests to the enterprizing European who reclaimed the land. I know from experience that human excrement is especially suited to plantains, and that when well manured with this, they yield enormous crops, and do not require the usual triennial transplanting."

"The municipal railway should be used as at present for the removal of filth to the ground where it has to be utilized. The carriages on this should be simple flat trucks, on which the buckets would be placed ; these latter should be used both for removing filth from houses to the railway, and then again from the railway to the land ; the buckets should be capable of containing each half a ton, be narrow towards top, and have axles for adapting them to skeleton carriages ; they should not have covers, but dry-earth should be used for covering the surface of their contents and preventing the escape of unpleasant gases. If the amount of excrement daily removed from Calcutta does not exceed 300 tons, the whole of this can be profitably expended on the square mile of land enclosed from the Salt-water Lake. If more, it will probably be necessary to reclaim more land : a square mile of land well cultivated will yield yearly crops of plantains worth Rs. 3,00,000, and the expenses of cultivation, together with the carriage of the manure, ought not to exceed the sum at present expended in conservancy.

"If this system be adopted, the present drainage works will still be required to remove rain-water, and the water used in washing, to drain the subsoil, and to keep the town thoroughly dry. The pumps also will be useful in draining portions of the Salt-water Lake which it may be considered advisable to reclaim."

It is well to remark in passing that the dry conservancy is not a new thing. The principle of it has been known to, and acted upon by, the natives of India from time out of memory. They never, in fact, dispose of filth by the water carriage system.

They follow the unerring instinct of the lower animals. The first thing that they do, in their treatment of filth, is to cover it with dry earth or ashes. They then transport it either to be exposed to the sun or buried underground. They are well acquainted with the value of human ordure as manure. In the highlands of Bengal and throughout Upper India men are invited by the cultivators to ease themselves in their fields. So that we need not entertain any apprehension, as Dr. Fawcus seems unnecessarily to do, of "the unwillingness of the Natives to make use of human ordure as manure" being in the way of the reclamation of the Salt-Lake area.

In conclusion we shall only say that as "the Municipality of Calcutta and the Government," according to Dr. Smith's own admission, "are committed to the system of drainage which is now in process of execution," let the system be completed in so far only as it has been begun, and with an eye to drainage alone; but let at the same time arrangements be made for the dry-earth conservancy.

Address in Medicine delivered at the 37th Annual Meeting of the British Medical Association held in Leeds, July 28, 1869, by Sir William Jenner, M. D., F. R. S, &c. *(British Medical Journal,* July 31, 1869*)*

A Hand Book of Therapeutics: By Sydney Ringer, M. D., Professor of Therapeutics in University College, Physician to University College Hospital, London: 1869.

The Drift of Modern Medicine. An Address at the Annual Assembly of the British Homœopathic Society, June 30, 1869. Henry Turner & Co., London: 1869.

WHILE out in the street one fine morning at that agreeable season when "the year is yet unconfirmed"—when surly winter, reluctant to abdicate, holds divided empire with gentle spring, the sight of a Kaviraj who was wending his way probably on a visit to some patient who required an early visit put us in a curious train of thought. We saw in him the representative of what we believe to be an old, aye the oldest, effete system of medicine. But it was evident that in the struggle for existence, he was not only still holding his own, but doing much better than many who boast of a scientific knowledge of their profession. Does he always

kill those to whom he administers his pills and potions? Does he invariably fail to relieve suffering? Had it been so, he could never have plied his craft, he could never have earned a reputation. He has a place not only in the community but in the profession, just as the tree fern, his vegetable analogue, has in the vegetable kingdom and in the economy of Nature. Is it that Nature, while she is always striving to elaborate higher forms, has a lingering fondness for the lower? Or that she saves them from extinction because they serve some useful purpose which we with our limited faculties fail to discover? We incline to the latter view as being the more philosophical.

The principle of struggle for existence is as much visible in the empire of thought as in the other departments of Nature. Just as in the vegetable and animal kingdoms it is not always the highest organized that triumph in the great battle of life, so in the spiritual kingdom, if we may so speak, it is not the most truthful idea that obtains mastery over the human mind. Nevertheless, as the ultimate and permanent triumph is with the race of the higher organisms, so the ultimate and permanent success is with the ideas which most largely shadow forth truth. It is no doubt this conviction of the human mind which has given rise to the adage, *Magna est veritas et prevalebit.* However therefore we may grieve at the sight of the triumph of error, we should not lose heart, we should not despond, we should remember that this abnormal state of things will not continue for ever. Or rather we should remember that just as no living being, vegetable or animal, can continue to live unless there be an adaptability of the surrounding circumstances to its various functions, so no idea can continue to have any hold on the mind unless there be something to recommend it.

An idea, or a number of similar ideas, underlies a system of philosophy, morals, or religion, just as an individual or a number of similar individuals underlies a species, animal or vegetable. There is a scientific interest in watching the decline of a system just as there is in watching the decline of a species. In the case of a system there is an additional interest, derived from viewing the efforts made by the advocates of the system to maintain its place and save it from oblivion. These efforts are reducible into two heads—1. To show off the excellencies of the

system; and 2. To assimilate to it without acknowledgment the ideas and excellencies of other systems with which it is in rivalry. Sir W. Jenner's address is of the first kind, Dr. Sidney Ringer's Handbook is of the second, the object of both being to prop up the tottering fabric of Orthodox Medicine. As we have said in our *Retrospect*, there is yet vitality in old school or orthodox medicine, but neither of these methods is the proper method to keep up that vitality. People's eyes can no longer be shut, and it is easy to see that the drift of "modern medicine," as orthodoxy vaunts itself to be, is towards its grave.

We do not criticize Sir W. Jenner's Address in Medicine as an address. As such it is excellent, a master-piece of defence of Medicine as an Art, well worthy of the name, and of the discoverer of the distinction between typhoid and typhus fever. But when we come to his efforts to demonstrate the progressive nature of the drug-therapeutics of the old school, we easily see how vain and fruitless they are. The following is all that he can say on the subject:—

"The advances of curative medicine have been as decided as those of preventive medicine Not only have sounder views of the rational treatment of special diseases, based on advances of pathological knowledge, been established, but new drugs, of great practical worth, have been introduced into our pharmacopœia, and old drugs have been found to possess virtues heretofore unsuspected. How wonderful is the influence of bromide of potassium over diseases, for the treatment of which we were but a few years since almost impotent! A dull, heavy-looking lad suffered, for seven years, from epileptic attacks, steadily increased from the first in severity and frequency, till many occurred in the twenty-four hours. For a year he was treated by a physician, on general principles, with little benefit. The case was in all particulars most unpromising; yet, from the time the boy took the first dose of bromide of potassium to the present, nearly three years, he has not had a single fit.

"Is this a solitary case? Certainly not. We could all match it. But it illustrates well the power of a new drug over a class of cases which, not long ago, were regarded by practical men as almost as much beyond the curative influence of drugs as is a case of cancer of the breast. To one other of the powers of this drug I must advert, viz., its influence on the sexual organs,—a power which enables us to exercise a real curative influence over a class of most distressing affections for which, by drugs at least, we could formerly do nothing.

"Other illustrations of the strides made in drug-therapeutics, are afforded by the influence of cod-liver oil on the cachexia of tubercular disease and of

rickets; of iron on the cachexia of the aged; of digitalis as a cardiac tonic; of ipecacuanha in the cure of dysentery; of sulphites and sulphurous acid, and of carbolic acid, in the treatment of vegetable parasites; and of Faradisation and the continuous current in some morbid states of the nervous system."

This defence of therapeutics is poor indeed, if nothing more and nothing better can be said in its favor. Are we to believe that a man like Sir William Jenner is satisfied, in practice, with cod-liver oil as a remedial agent in tuberculosis, ipecacuanha in dysentery, iron in the cachexia of old age, &c.? In other words, are we to believe that he has been invariably successful with them? Or again, does he use cod-liver oil because he has to deal with a case of tubercular cachexia, ipecacuanha because he has to treat a case of dysentery, &c.? That is to say, does he look upon these agents as specifics in the several affections he has enumerated under them? It must have been hap-hazard experiment which originally led to the use of these remedies. But has repeated experience established their efficacy as such? We know that it has not. How then are we to account for our failures? Is there no law which governs the actions of medicines, in the light of which we can understand the reason of their efficacy or otherwise? Is there no law which can guide us to the discovery of new remedies? For it is notorious that the old school has entirely to depend upon chance for such an object, having as yet no instrument of discovery. Is medicine then to remain a lawless thing for ever? Sir William is brought face to face, as it were, with the relationship that exists between the actions of drugs in health and disease, therefore with the law of healing, but he passes it over as if it was of no importance. He does not seem to think that there could be any guide to treatment other than blind empiricism. Otherwise he should not have said as follows:—

"If it should be considered as proved by experiment on dogs that mercurials do not produce increased secretion of bile in man, it would not in the least throw doubt on the established facts in regard of the great flow of a yellow and green-coloured fluid from the bowel after the administration of a mercurial to man, and the relief to many distressing symptoms which follows. A man's bilious headache, as it is termed, would be none the less certainly cured by a mercurial, even though it should be shown to the satisfaction of the whole profession that mercury does not increase the secreting power of the liver."

We turn now from Sir W. Jenner to Dr. Sydney Ringer—from the veteran whose convictions and faith may be supposed to have been formed and become stereotyped, to the rising young man whose judgment might yet be susceptible of being moved by the influence of truth and of fact. A glance at the *Handbook* reveals that the author recommends strange drugs in strange doses; we mean strange to the school to which he belongs. The drugs and the doses are certainly not strange in themselves; they have been long in use amongst the disciples of Hahnemann. How is it then that an avowedly allopathic physician, the Professor of Therapeutics in an avowedly allopathic institution, should have ventured to recommend their use? Nay, how is it that he has been led to it himself? We turn to the Preface for light and we are disappointed. The author acknowledges the obligations he is under to the works of Buchheim, Parkes, Stilé, and Clarus, but does not even allude to the writings of Hahnemann and of his School, whence he must have derived his knowledge of the drugs and the doses never taught in the school in which he has been brought up.

Mr. Alfred Pope, the accomplished Editor of the *Monthly Homœopathic Review*, and if we mistake not, the same Mr. Pope who was persecuted by the University of Edinburgh, has, in the very able and eloquent address before us, so well exposed the unacknowledged absorption of the teachings of the homœopathic school in Dr. Ringer's Handbook, that we quote him with pleasure and at length:—

> Within the last month a small book has appeared, purporting to expound the actions, and detail the uses of the most important drugs in the pharmacopœia. Its author is Dr. Sidney Ringer, the professor of Materia Medica in University College.* The absorption of the teachings of homœopathists presented in this volume is singularly considerable. Examining, then, for a few minutes this, the latest deliverance of modern medicine, I would ask, how came it to pass that modern medicine found in mercury a remedy for mumps? † On what principle can it be that the cure of dysentery by the bichloride of mercury "is remarkably speedy and certain"? ‡ Whence did modern medicine learn that "a drop of the solution of arsenic, administered three times a day," would be of much assistance in chronic coryza? §
>
> * "Handbook of Therapeutics." London: Lewis. 1869.
> † Op. cit., p 169. ‡ Op. cit., p 171.
> § Op. cit., p 189.

That "in chronic ulcer and cancer of the stomach arsenic is invaluable, by curing the pain and checking the vomiting of these complaints"?*

The testimony, "writes Dr. Sidney Ringer," in favour of the employment of this remedy [arsenic] in cholera is very great. It is especially recommended in the later stages of this disease, where there is much collapse." †

Whose is this testimony? I would ask. What is the therapeutic principle, the discovery of which led to the accumulation of this testimony? Dare modern medicine tell? Who informed modern medicine, or from what principle did her disciples learn that camphor will "cut completely short," or much abate the violence of catarrh and influenza in its first stage, but that if this "is past the remedy is without effect"?‡ Whence the knowledge that "in the treatment of summer diarrhœa, and even of cholera, there is, perhaps, no remedy so efficacious as camphor, but that it must be employed at the very commencement of the disease, or it will be without effect"?§

And, again, who first announced the fact, given in Dr. Sidney Ringer's "Handbook" as though it had never previously been stated, that "the influence of camphor in cholera is most conspicuous"? Where is the key to the fact that in the difference of opinion prevailing as to the utility or danger of cantharides in inflammation of the kidneys, the "discrepancy" arises from the difference in the dose in which it has been administered by different observers"?‖ How happens it that, while acting as an irritant to the urinary tract, "it may yet be employed in cystitis," and similar disorders? What is the principle that would have suggested to the mind of the teacher of modern medicine so powerful to check some kinds of vomiting as ipecacuanha"?**

One more, and I have done with Dr. Sidney Ringer. On what principle, recognized as what is termed orthodox is any teacher of modern medicine justified in asserting that camomile "may be very usefully given every hour or two to children with diarrhœa of green, many-coloured, slimy stools"? "Such a diarrhœa as is frequent in summer, and also during teething." Dr. Ringer asserts this just as every homœopathic practitioner has done during the last sixty years or more.

Many more are the truths taught in this volume, which have been derived from the doctrine of HAHNEMANN, and urged by his disciples during long years upon a blind and prejudiced generation of physicians. For it is a fact—only tell it not, I pray you, in University College, publish it not in the Strand—it is a fact that well nigh every statement regarding the curative power of drugs here recorded and worth remembering at the bedside, is a tribute—silent certainly, and unwilling doubtless, but none the less a tribute—to the truth of homœopathy!

* Op. cit., p. 190.
† "Op. cit.," p. 191.
‡ Op. cit., p. 264.
§ Op. cit., p. 265.
‖ "Op. cit.," p. 286.
** Op. cit., 294.

Of all the sins which the human mind can be guilty of, we believe the sin against truth, or in other words, against one's own convictions, is the greatest and the least excusable. For such a sin is deliberate and cold blooded as it were; it bars repentance, the first step to salvation or deliverance from sin. By its very nature it is irremediable. Of such a sin Mr. Pope has well convicted Dr. Sidney Ringer, and we are sorry to add, of such a sin we find many of our professional brethren here convicted. When orthodox professional men have begun to use ipecacuanha in vomiting, camomile in diarrhœa of children, mercurius in mumps, arsenic in cholera, aconite in inflammations, &c., &c., and begun to use these drugs after they were being used for upwards of half a century, by a class of professional men who were condemned and anathematized as quacks on that very ground,—we say when orthodox professional men have thus begun to adopt without a word of acknowledgment the practices of these heretics, is it not outrageous beyond measure to continue to condemn them? Orthodoxy is bound to show cause why and on what grounds it has been led to such strange therapeutic proceedings, or it must plead guilty of theft, and more, of having abused and mal-treated those whose property it has stolen.

"We are, then," says Mr. Pope, "arrived at such a pass as this -that to teach as facts observations derived from the practical application of the law of similars, and either to deny its authenticity as does Dr. Wilks, or to ignore its existence, refusing to accord to it any influence at all, as does Dr. Sidney Ringer—*veritas vel mendacio corrumpitur vel silentio*—to give forth these facts as novelties, as original, is orthodox and right, is honest, is worthy of a man! But to tell of the principle that pointed out these facts, and hundreds more beside them, similar in character and equally valuable, is - what? Is heresy! is quackery! is that which shall ensure the forfeiture of an hospital appointment, secure the denial of professional courtesy, entail exclusion from professional society!"

Analogous to the guilt, on the part of members of the old school, of not acknowledging, while adopting, the teachings of Hahnemann, is the guilt, on the part of certain members of the new school, of recommending these teachings without mention of the name of the illustrious man to whom we are indebted for them. This is an ingratitude and a cowardice which any one with any self-respect ought to be ashamed of. While we shall be free to

admit and mercilessly to expose any error and any spirit of impatient dogmatism which we may discover in his speculations, we must be equally candid openly to declare what he has done for medicine, for science, and for humanity, and this we must do, fearless of the consequences. Shall we deny Hahnemann because the mention of his name might prove repulsive to haters of truth and of progress? Shall we deny him that we might induce to look into homœopathy those to whom official position is greater than "the relief of man's estate?" Certainly not. We rejoice, therefore, at the manly expression of just indignation which Mr. Pope has given in his brilliant address :—

It is said, and said rightly, that it is our duty to encourage to the utmost of our power the adoption by allopathic physicians of remedies suggested by the law of similars. We are, however, told by some that the frequent mention of the name of HAHNEMANN is a stumbling-block to this end. That by repudiating HAHNEMANN we shall promote the spread of homœopathy. That it would be infinitely better *policy* never to allude to the work accomplished by HAHNEMANN—that, in short, the sooner he is forgotten the better will it be for homœopathy, the better will it be for medicine!

Thus are we told that *expediency* requires of us the sacrifice of the memory of the greatest therapeutist of this century, in deference to the cowardice, the prejudice, and the weakness of the leaders of modern medicine!

Expediency, Sir, I abhor, come in what shape it will. Despicable as it is when urged by the so-called statesman as a reason sufficiently valid to justify the extinction of rights the most sacred; never is this time-serving, cowardly vice so detestable, so ghastly, as when calling upon us to do dishonour to one to whom we owe so vast a debt of gratitude as we do to HAHNEMANN.

No, Sir; I turn from the revolting suggestion, and claim for HAHNEMANN the highest honour, the most profound veneration from all who profit, as we do, by his life of labour, of suffering, and of persecution. No one man ever lived, whose influence upon the practice of medicine has been so great as his. No man ever lived, the influence of whose work and teaching will so deeply tincture the medicine of the future.

We must here take leave of Mr. Pope, and in doing so we offer him our cordial thanks for the pleasure and instruction we have derived from his very able, eloquent, and suggestive address. We wish that such earnestness after truth and such manly independence in avowing it, as he has therein displayed, were more common in the ranks of the medical profession.

CLINICAL RECORD.

A case of Mental Disease and Convulsions brought on by sitting in Spiritual Circles.

UNDER CARE OF DR. M. L. SIRCAR.

BABOO C. L. P. thought it his duty to inquire into the truth of spiritualism. He accordingly began sitting in spiritual circles in July or August, 1867, and continued to do so for some months. While in these circles he used to get convulsions or shocks in the upper and lower extremities. These gradually became more and more threatening, till after the lapse of 4 months, they settled down into a serious disorder, of which the chief symptoms were the following :--

He received nervous shocks, during prayer and sleep at night, and sometimes also at other hours, in the hands and legs. He felt great heat in the head. Peace of mind forsook him. He would hear distinctly voices speaking from within him in abusive and filthy language. He felt much depression of spirits. A European friend of his, who was his guide in "Spiritualism," tried to alleviate his sufferings by mesmerism and homœopathic medicines. The benefit derived from these was considerable ; but he still had troubles, which were as follows :—

It seemed as if small balls coursing along the hands and legs caused the nervous shocks. These shocks were generally felt during prayer and sleep as mentioned above. He would hear voices using expressions much less disagreeable than before, and sometimes as if singing hymns.

He had however so far recovered that he could devote his attention to serious subjects such as theology and religion, and even attempt writing on them. He continued in this state till the middle of February, 1868, after which he became bad again. One night he felt severe shocks in his right leg, and thought as if some body told him he must be mesmerized in order to recover. He now placed himself under the treatment of the late Dr. Berigny who gave him *Nux Vom.* 3 to take, and advised him to get mesmerized occasionally. The *medicine* did him some good. The heat of head was much lessened. But the attempts of a friend at *mesmerizing* him made him worse. His nervousness was greatly increased. The mental disturbances and the shakings of the limbs became aggravated. One day he felt as if the nerves were being violently torn. It seemed as if fire was coursing through the body, running from his left foot to the head, burning the forehead, the eye-brows, the ears, and partially the eyes. He now became a totally

changed man. He forgot his prayers and hymns, which were his delight when he was well. He was now treated by his family physician in consultation with another medical man. The medicines given were valerian, musk, opium, and bromide of potassium. These gave him some relief; but three weeks after, he had again a terrible aggravation of his disease. His troubles grew worse and worse day by day. He felt a constant desire to put an end to his life. Reading, writing, and even conversation with friends were well-nigh stopped. He was always restless. His sufferings were greater in the morning. The only time that he had any relief was the evening. His sleep was disturbed. His peace of mind was almost gone. Prejudices and superstitious beliefs which could find no place in his mind, now began to trouble him. The shocks continued, sometimes increasing, sometimes decreasing.

He consulted me in the beginning of May, 1868, but he did not remain under treatment long. He went to Monghyr for a change, taking with him medicines from some Kavirajs. But neither these, nor the company of sympathizing friends by whom he was surrounded there, nor the beautiful natural scenery in the midst of which he resided, availed him anything to soothe his troubled spirit, and relieve the pangs and the agonies which were tormenting him. After 3 weeks' residence at Monghyr he returned to Calcutta.

From the time of his return to Calcutta to the end of August he was sometimes under native, sometimes under English treatment. During this time his disease raged fearfully. The nervous shocks convulsed him frightfully. Vicious and abominable thoughts, chiefly of a lustful character, troubled him continually. Sometimes the workings of his mind were of a ludicrous, sometimes of a grave nature. Some times he would laugh, and sometimes cry, against his will. He experienced sensations of various kinds, creeping, warm, throbbing, shifting, running, encircling, and such like. These sensations were felt in all parts of his body. Visions and apparitions of persons living and dead troubled him greatly. All hopes of his recovery were given up. Nothing was left untried, but every thing now failed to do him the slightest good. Homœopathy was again thought of, and his friends and relations resolved to give it a fair trial this time.

I visited him on the 30th August, 1868, in company with Baboo Rajender Dutt. We found him in very bad condition. He seemed to recognize us, but did not speak to us at all. He was suffering continually from convulsive shocks. We were told that for the last fifteen days he was particularly bad. He sometimes falls down as if

paralyzed. He would walk with heavy steps. He would run as if in fright. He would utter the loudest lamentations and cries, evidently in agony. He would not eat, unless forced to do so. His appearance was quite changed. Pale and emaciated, with suffering and distraction in his countenance, he was an object of the greatest commiseration. An old friend, we could not help shedding tears at his wretched condition. There was not the slightest hope of his recovery—he had not that hope himself, his friends and relations had it not (otherwise they would not have had recourse to homœopathy !), neither had we any hope ourselves of being able to do him any good. The disease had advanced so far, and had taken such a deep root, a strong mind had been so thoroughly perverted and a robust frame had been so much shattered, that we feared to take up his case, lest the failure, that appeared to us inevitable, should jeopardize the credit of the system for which I had made so much sacrifice. For it is a curious phenomenon for which we had often to suffer, that though it is at the last moment that homœopathy is had recourse to, she is always blamed for the unfavorable termination which is inevitable and indeed at the prospect of which her aid is sought. These considerations did not, however, deter us from undertaking the treatment of our friend.

We gave him no medicine on the day we first visited him. We took time to study his case. On the following day we prescribed *Zinc. met.* (6), as very nearly covering his mental state and his physical disturbances. The very first dose had a most remarkable effect. The dose was given at about 8 in the morning, and at 9 sleep, which seemed to have forsaken him, came over and spread balm over his troubled spirit. He had enjoyed it for about an hour or a little upwards, when he was awakened by a noise. Nevertheless, though thus disturbed he felt considerably relieved and refreshed. In the course of two or three days, the nervous shocks were a great deal subdued. In the course of a week he could go out to a neighbouring friend. The first sign of real improvement in the mind which he perceived was, he tells us, the rise of a desire to sing a hymn which was his wont in health.

After the lapse of a week from the commencement of treatment, an inflammatory blush was visible on the skin a little below the middle of the right clavicle. There was pain on pressure, and in the course of two or three days, the part became swollen. There was some feverishness associated with it, which was subdued by a few doses of *Aconite*. The swelling not subsiding, we prescribed *Hepar*

sulph. 6, which brought it to a head in a day or two. We opened it and found it deep-seated, beneath the pectorales. The wound healed in about a week. It is remarkable that the nervous shocks greatly subsided, coincident with the first appearance of the swelling, and they well-nigh disappeared after the healing up of the abscess.

Thus in the course of a month our patient was so far himself again as to be able to write long letters about his illness to his friends. Since then he has steadily improved and can now be safely pronounced to be all right. He only occasionally suffers from abnormal sensations, and from his old biliousness, but these are easily dissipated, the former by a dose or two of *zincum*, and the latter by similar doses of *nux vomica*. There was this thing remarkable in the treatment of this case, which we have often observed also in the treatment of other chronic complaints, namely, that we had to intermit our remedies and we had to change their dilutions. We had to go higher and higher till we reached the 200th, and we have now descended to the 6th which we find useful again.

Remarks.

This case is peculiarly interesting in many respects.

In the first place, though it does not throw any light on "Spiritualism," a great topic of the day, it shows at least one thing, viz., that what is called a spiritual circle, formed by several individuals sitting round a table, with the hands of each individual being in contact with those of his neighbours, and with their attention directed towards one object, is an arrangement, which whatever might be its "spiritual" effects, does produce appreciable physical effects, more or less felt by all the members of the circle, but especially by one or two of delicate fibre and peculiar nervous susceptibility. I have known several individuals who have received shocks while sitting in the circle, and I have known a few who have suffered much in health, from continuing the experiment for sometime; and I have known one who after long-continued illness traceable to this cause, at last fell a victim to it. I am almost sure our friend's fate would have been the same, had it not been for the interposition of homœopathy. Whether the circle fits any one for the reception of impressions from the spiritual world, is a question which we are not in a position either to prove or disprove; but this is certain that there is transference of force, probably electric, from individual to individual till equalization is effected in the circle as a medium through which electricity or its analogue nervous force can circulate. Now in this transference of force, it must be that the individual, who has more than the mean of the whole

force in the circle, shall lose, and he who has less shall gain. The effects of the loss or gain being perceptible in the shape of disturbed action of the nervous centres, manifested by loss of consciousness, delirium, hallucinations, and spasmodic action of the muscular system. These disturbances being greater or less in proportion to the greater or lesser amount of gain or loss. We believe the consequences are serious, and may become disastrous, more in cases of loss, than of gain, of force.

Secondly, it places, we believe, in the most convincing light the value of homœopathy. Here we have a case of a most grave disorder, involving both mind and body; it is treated for a good length of time with all the resources of orthodox medicine, and it becomes so bad that all hopes of recovery are extinguished, when the aid of homœopathy is sought, and the infinitesimal dose, the laughing stock of the dominant section of the Profession, saves the patient from the very jaws of death. The disease had not its origin in an "idea," and there was no faith to back our placebos of "plain water" and "sugar pills." The disease had got possession of the patient against his better nature, and our medicines were at first taken "unwillingly and with suspicion," till at last faith was established upon conviction forced by the remarkable efficacy of the medicines.

We cannot avoid taking this opportunity to draw attention to the especial, inestimable value of homœopathy in mental disorders. A grand distinguishing characteristic of the system, one which shows its founder to have been a profound observer and a genuine discoverer is, that it takes notice of the influence which drugs exert upon the functions of the mind. Homœopathy thus practically recognizes a physical basis for psychical diseases; and it has been eminently successful in their treatment.

A case of bath being habitually followed by peculiar uneasy symptoms.

UNDER CARE OF DR. M. L. SIRCAR.

THE following statement, which has been furnished to me by an estimable Mahámadan friend who placed himself under my treatment on the 7th Nov. 1869, for the disease mentioned therein, and who has now (Dec. 30) been completely cured, will no doubt be read with interest.

The drug that effected the cure was *Pulsatilla* 30. Benefit was perceived on the very first day medicine was taken, and cure was complete in less than a month.

"I do not exactly remember when and under what circumstances the disease made its first appearance, but as far as I recollect I think it was some 6 or 7 years ago that the disease first commenced. I had been, from a very long time, troubled with nocturnal emissions and this continued so long as to weaken my constitution considerably. With us Mahamadans every emission is followed by a bath, for we consider a man to be polluted after such an occurrence, and the bath is most strictly enjoined. Sometimes when these emissions occurred daily, I was obliged to bathe every morning, but after each bath I felt such an oppressive depression that one can hardly imagine its extent. For the whole of that day on which I bathed I felt, besides the depression, a continual dryness of the tongue, burning of the skin, a good deal of langour, a great distaste for water, though I had a good appetite especially that day, my eyes seemed as if they were every moment being pushed back into the orbit and my head appeared so light and empty as if they were off my shoulders. For sometime these symptoms appeared whenever I had a bath after an emission but subsequently they continued to make their appearance whenever I bathed, whether after an emission or without an emission. Because having used a Hakim's medicine for a short time, the emissions had discontinued, but whenever I took a bath that depression with its accompanying symptoms came on as a rule. I continued to labour under the above malady for some 6 or 7 years as I have already stated. At last applied to you for advice when you were kind enough to give me some Homœopathic medicine, and now thank God and next thanks to you and Homœopathy, I am quite well. None of the symptoms occur if I bathe now and I have been cured so soon and so imperceptibly that I am quite astonished at the effects of your medicine: for I had previously tried many medicines though in vain."

Gleanings from Contemporary Literature.

INFLUENCE OF CIVILISATION ON HEALTH,*

By John Henry Bridges.

Towards the middle of the last century a strange question was raised by a strange man. It was a question so vast, so astounding, so chimerical, so destructive, that in any other time but ours and his, men would not have listened to it, would assuredly not have cared to answer it. For the question which Jean Jacques Rousseau put to civilised Europe was nothing less than this. Is not the whole fabric of human society, from beginning to end, a continuous and systematic blunder? The manners and the modes of men, their decalogues, their worships, their laws, their pleasures, their sciences, their arts,—the rich many-coloured tissue of man's life woven in the loom of Time,—seemed to the eloquent self-tortured sophist, but as the rags of the charnel-house. Civilised man was a monstrous and abortive growth; a distortion of the healthy vital process. Yet the disease, though terrible, was not beyond the hope of cure. There was a road to recovery, though a difficult one. "Revert," said Rousseau, "to the state of nature. In the American forests, in the islands of the South Sea, you may still behold the true type of man. Undo the hateful work of time. Strip your civilisation off. Erase the past. Begin history again."

There is no need for us seriously to examine the paradox of Rousseau. But the paradoxes of sophists and of charlatans, especially when the marsh fires of false sentiment and vanity are annihilated now and then by the lightning of true genius and passion, have sometimes a prophetic force, and start problems which a later age shapes into definite form, and subjects to scientific method. Sociology, like chemistry, has its alchemistic period. And the abstract entity of "Nature" played the same part in the sociological speculations of Rousseau as the "vital spirits" in the biological speculations of Boerhaave, or as the "eternal fitness of things" in the moral speculations of Fielding's pedagogue. For it needs hardly to be stated that the philosophical savage of Rousseau, combining in himself the qualities of a Greek sage, a Roman hero, and a Christian saint, bore as close a relation to the Choctaws and Iroquois whom he professed to admire, as the gods of Olympus to the bandits who may inhabit the neighbourhood of that mountain in the present day.

The world is now beginning to see that we have no more reason to regard social phenomena than we have chemical phenomena as being under the dominion of arbitrary agencies, either without or within, either personified or abstract, either supernatural or metaphysical. Without either denying

* Delivered before the Royal Institution, February 27, 1868.

or affirming such agencies, we regard them as, in the strict sense of the word, transcendental, transcending the powers of man to investigate. We limit ourselves to the study of the laws, that is, of the constant relations which exist in social phenomena, as well as in electrical or chemical phenomena. And in this study we are guided, first, by the various methods, instruments, and results, of which students of mathematics, physics, and biology, respectively avail themselves; and, secondly, and more especially, by a method peculiar to the subject matter; a method which will, so far as we can see, remain for ever as distinct from discussions on the Protoplasm, as it will from discussions on the binomial theorem; the method of Historical Filiation, or the study of the laws according to which the acts of each generation affect the acts of its successors.

The application of these remarks to the subject before us will be, I trust, obvious. We may take up the problem which Rousseau mooted, and to which he gave so confused and chimerical a solution. We may deal with the same series of phenomena, but treat these phenomena in a Positive, not in a Metaphysical spirit. We may, like Rousseau, propose to examine into that complex order of facts called Human Civilisation, and form an opinion as to its effect upon the physical organism. But unlike him we start with the conviction that these facts are subject to natural laws; that civilisation cannot be created or destroyed by a few eloquent words, a few magical abstractions, such as a State of Nature, a Social Contract, Rights of Man; that the phenomena of which it consists, and that portion of them which relates to the physical structure of man, as well as others, are subject to natural spontaneous processes, lying to a large extent beyond human interference. We have then to settle what the limits of such interference are, and how and in what direction it is to be exercised. To find the law, to find the limits within which its operation can be artificially modified by human action,—this is the twofold problem.

To come at once to the point. In what way is the civilisation of Western Europe affecting the health of European populations? that is the first question: and the second question is, having found the spontaneous law of the influence of civilisation upon health, how far can the operation of that law be modified by artificial human action? I need, I hope, hardly say that I do not pretend, in the limits of this lecture, limited still more narrowly by the measure of my intellectual power, to give a satisfactory answer to either of these questions. I wish only to put before this audience in a definite and precise form a problem which is unquestionably the greatest, or all but the greatest, that can possibly be presented for human thought; and for the solution of which all that portion of the intellectual energies of mankind which is not absorbed in the immediate requirements of everyday life will not be found too great.

On ne doit penser, said Leibnitz, *essentiellement qu'à deux choses; d'abord la vertu, et puis la santé.* These are the words of no pedagogue, no droner of dull saws, but of the most encyclopædic thinker, if we except Des Cartes, for Bacon we need not except, whom the world had seen since

Aristotle. Virtue and Health: that is to say, whatever tends to ennoble human life, whatever tends to strengthen it, this forms the twofold object of human thought. It will be one purpose of this lecture to show these two objects are in reality far less separable than they seem; that they are the gold and silver sides of the same shield. And if my subject leads me to dwell with apparent exclusiveness upon the less precious metal, let me not be thought for a moment to ignore the transcendent superiority of the other.

It is essential, then, to form some clear and comprehensive conception of what is meant by Health. Many definitions have been suggested of it. I have elsewhere defined it as the *greatest energy of each part, compatible with the energy of the whole.* A simpler definition of it, given in a short Sanitary Catechism intended for primary schools, is, *Being able to do a good day's work easily.* The simpler definition coincides in meaning with the more complex. Energy is measurable by the amount of work done. When there is perfect health, *there* will be the greatest economy of the vital energies; *there* will be the most complete *synergy* of all the functions; *there* will be the minimum of loss, resulting from antagonism of functions, and from degradation of the higher into the lower forms of force. Let me escape for a moment from the abstract into the concrete. The digestive process requires for its due performance a certain amount of nervous energy. In a healthy man, the function is perfectly performed, with a minimum of nervous force; as little as possible is subtracted from what is needed for the higher purposes of life. There is a certain lowering, even in this case, of the moral and intellectual functions: Thought is less vigorous, Emotion less delicate, sensitive, and aspiring; but the direct strain on the superior portions of the nervous system is slight, there is no pain, no consciousness. In the diseased condition of the organ the case is precisely opposite. Then, owing to whatever physical, chemical, or organic obstructions, the call made on the nervous energy is great—a long and complex series, of extraneous, and for the end in view, useless, actions and reactions is started; the secreting tissue calls for more blood; the influx of blood in turn morbidly affects the secreting tissue; unwonted stimuli are sent through the terminal nerve fibres to the spinal cord and brain; pain is felt; a disturbance more or less profound of the emotional nature arises; morbid reactions radiate in every direction to the part primarily affected, to the whole muscular system, to the organs of intellectual action, and to every other part of the fabric. The oscillation in time ceases; the function is at last performed; but energy has been wasted, has been degraded from the higher forms of thought, feeling, and action, to some lower and, for human purposes, useless phase of force.

Take another instance, illustrating healthy or morbid performance of muscular function. Two boys of equal muscular development, but of different skill, are throwing stones—the practised thrower with slight effort, sends his stone eighty yards; the tyro exerts twice the amount of muscular force, and produces half the result. Muscular energy that should

have been consumed in hurling the stone, reveals itself in the useless form of increased evolution of heat. For the purpose in view, it has been wholly lost. I might take as a third instance of a function healthily and unhealthily performed, the contrast between two fighting men of equal courage, the one a drilled soldier, the other a wild savage. The same destructive passions are ablaze in both; a tremendous force available for the end aimed at. But the savage expends a large portion of that force in aimless actions, in wild cries, and frantic gestures. The drilled, self-controlling soldier allows none of the explosive force to be wasted thus; he reserves and stores up his passion till it can be concentrated on the predetermined action.

> "With noise and clamour, as a flight of birds,
> The men of Troy advanced: as when the cranes,
> Flying the wintry storms, send forth on high
> Their dissonant clamours, while on the ocean stream
> They steer their course, and on their pinions bear
> Battle and death to the pygmean race.
> On the other side the Greeks in silence moved,
> Breathing firm courage, bent on mutual aid."

The greatest energy of each part compatible with the greatest energy of the whole—such is, then, our definition of Health; implying, as we have seen, the harmonious action of each organ, the absence of antagonism, the combination of strong individuality with orderly co-operation. Health, in fact, in biological science, is analogous to the great conception which dominates the kindred science of Sociology; the combination of order with progress.

Slightly varying our point of view, we may again define Health as *The most perfect form of life.* Now life consists, as Auguste Comte long pointed out, in the continuous adjustment of an organism to its environment. Health, therefore, is the state in which that adjustment or adaptation is most complete. I will again endeavour to render my meaning tangible by illustrations drawn from the three modes of life which in man are found united: vegetable life, animal life, and social life.

The function called Respiration is an interchange or reciprocal action carried on between the atmosphere and the liquefied substance of the organism; the surface at which these two agents come into contact being the respiratory mucous membrane. The right performance of this function depends, then, essentially upon two conditions. The air must be pure, the blood and the lung-tissue must be sound. The first condition is physical; the second may be called at present, for want of a better name, vital. It depends upon the constitutional stamina—that is, upon the inherited vigour of the organism. It is a question of breed.

Turn now for a moment to the twofold tissues of animal Life, the nervo-muscular tissues, which bring the organism into relation with other species, friendly or hostile, enabling it thus to select its rare and complex nutriment. There, too, the health, the work done by nerve or muscle, depends on proper adaptation of the environment and the organ; on the inherited vigour of

the muscular substance and on the weight that it is called upon to lift; on the inherited delicacy of the ear or eye, or touch, and on the quality of the luminous, auditory, tactile phenomena presented to it. The ear of the Red Indian, the eye of the eagle, the touch of the Hindoo weaver, the muscle of the navvy, possess inherited adaptation to photic, acoustic, cohesive, and gravitating phenomena to which the eye, ear, touch, or muscles of an ordinary man would be as insensitive and dead as a stick or a stone.

Finally, consider the third mode of vitality, found to an appreciable degree in man alone—Social Life. For I assume it as an axiom for my present purpose, doubtful though the doctrine may be to many, that man is distinguished from the other animal races, not by the possession of any organs which they have not, but by his existence, for a period of time so vast that geologists alone can estimate it, in the Social State. The brain of every infant born into the world is the receptacle of an enormous mass of inherited tendencies, traceable in great part to primeval ages, when it may have been doubtful which of the higher species of animals it should be that should gain the victory over the rest, and attain supremacy over the planet. These tendencies are, like the visual capacity, the auditory capacity, the tactile capacity, called into action by appropriate stimuli from the environment. And what in this case is the environment? The environment for this phase of vitality is Humanity; by which I mean not merely so many millions of individual men who may happen then to be living in the world, but the resultant sum of all human effort throughout the immeasurable past, embodied in that portion of the existing generation which has received and is fertilising the inheritance of the past, and which has not become a diseased and abortive misgrowth. Humanity in this sense of the word is to the individual what the organism of the mother is to the organism of the child before birth; and the organ of intercommunication between these two finds its analogue (most profound is the analogy to those who search it) in the human brain. The environment, or stimulus to moral action, in the individual, consists in the passions of other men finding vent in their appropriate actions; the play of those passions being regulated by the past history, the institutions, the government, the religion, the art, the science, the traditional teaching, that may at that time prevail.

Let me take as before one illustration from a thousand that would serve my purpose. There is an instinct in man, whether located in this convolution of the brain or in that matters little,—the instinct, whether simple or complex, exists, and is assuredly connected with some portion or portions of the cerebral substance—the instinct which prompts man to secure the approbation of his fellowmen. Every nursemaid knows that some children are born with this instinct strong, others have it weak. Given this instinct of a certain strength, the mode in which it shall perform its function depends now upon the environment. Let us see to what differences variation in this respect may conduct us.

There have been societies where personal courage was the one thing valued above all others. And in such communities a man in whom the instinct

we are speaking of was predominant would concentrate his energies, and sacrifice life itself, in the performance of deeds of valour. There have been other periods and places, as in the best times of the Roman Republic, and of the French, English, and Dutch Revolutions, in which the sense of civic duty was marvellously strong. There have been yet other times in which saintliness of life was the object of the strongest popular reverence. It is clear that the tendency to secure the praise of men, supposing it for a moment unresisted and unmodified by other instincts, would, so far as it went, stimulate a member of such communities to imitate respectively the actions of the Homeric warrior, the Roman citizen, or of the Mediæval saint.

Take yet another case. Suppose a community and an epoch, in which from various causes the military instinct was no longer called universally into play; suppose its population to have outgrown the limits within which the civic or patriotic spirit exercises an active controlling force, so that large masses may grow up, ignoring and ignored of one another; suppose, further, that owing to a vast revolution in opinion, Religion had almost ceased for a time to count as an influence in practical life; suppose, also, that as part of that same revolution in the intellectual world, man's power over natural forces had stupendously increased; what would be the reaction upon the instinct that we are considering of a social environment like this, in which the centripetal forces had been so suddenly diminished, the centrifugal as rapidly increased? What but this; that in so shifting a social state, the ties that bind man to his fellow citizens, those still more essential ties that bind him to the past or future, being weakened or shattered, the highest honours would be paid, not to the warrior, the patriotic citizen, or the saint, but to the man who had realised the means of power and of personal enjoyment; and that wealth, not military force, being the instrument of power, the acquisition of wealth would become the direct road to the satisfaction of the desire for praise.

I have been considering, you observe, in order to render my meaning more precise, one instinct alone. I have left untouched other, equally strong or stronger instincts—the love of command, the animal instinct of hoarding, or the elementary cravings for physical pleasure. But the final result will, when the effect of these, under such conditions, has been analysed, be still more obvious and certain—the pursuit of wealth for purely personal objects will concentrate every effort of that community, to the exclusion or postponement of every other object; so that at last it will become almost incredible to practical men not looking very far behind them or before, that any other object should be even appreciable as a permanent stimulus to human action, and a system of doctrine will arise to which will be given the large name of Political Economy, etymologically meaning the mode of administering states, but in reality (I speak of the greater part of the writings that go by that name, not of the writing of such men as Adam Smith or John Stuart Mill) based on the implicit assumption that the acquisition of wealth is the sole source from which human societies have arisen, the sole bond that secures their cohesion, the sole motive for prolonged human effort. And wealth being

the one object of desire, we may be sure that it will be created, accumulated, and destroyed, with a velocity unparalleled in other times; created, because I have supposed an enormous extension in man's grasp over the power of nature; accumulated, because I have supposed the moral checks that have hitherto stood in the way of rapid accumulation to be weakened; and destroyed for the same reason,—the man of wealth feeling himself at liberty to appropriate very large proportions of it to personal enjoyment, and not feeling any strong public obligation to preserve it for any civic purpose, or for the advantage of posterity.

And such being the moral condition, such the social environment, what will be the visible result, what will be the effect upon the physical structure, upon the breed of men and women? You will have, in the first place, a large and wide diffusion of material wellbeing. The intensified desire to accumulate will imply an immensely increased demand for labour; for the capitalist does not *make* his fortune, as is commonly and most falsely said, he only accumulates it; the fortune is made for him by the labourers; the capitalist contributing simply the directing skill, the plant, and the food necessary to support the labourers during their work. There will be an immense demand, therefore, for labour, and among many classes of labourers there will be a large increase of wages. And as a sufficient supply of wolesome food and of warm clothing is one essential constituent of public health, this result will be beneficial. But having put this result in one scale, and given to it its due weight—and the weight is very considerable—nearly every other result must be placed in the opposite scale. There are other conditions of health besides good food and warm clothing—conditions still more important than they. Pure air, pure water, sufficient sunlight, moderation in the hours of work, regularity of work, absence of excessive sexual or alcoholic stimuli, preservation of women, and above all, of wives and mothers, from all work outside the home—these are some of the remaining conditions of health, recognised by all.

And there is yet another condition less universally recognised, so little understood, in fact, that I find it hard to choose words which shall convey a prompt and clear conception of my meaning. I will call it Harmony of the Moral Nature; and, strange as at the first glance it may seem to introduce such a subject into a sanitary lecture, I think it may be shown, without any abstruse reasoning, that it lies at the very root of the matter. If we believe what modern science teaches, that no thought, no passion, no volition takes place without some motion or molecular change in the substance of some portion of the brain; if we reflect, also, that every portion of the body, not merely the skin, the organs of sense, and the muscles, but the heart, the blood vessels, the lungs, and every other organ of vegetal and reproductive life, maintains through its nerve fibres an immediate and unbroken connection with the brain; if we bear in mind, also, how promptly nerve-vibrations or disturbances are propagated in every direction where they find an outlet, it will be all but impossible to conceive that a disturbance begun at either termination of the nervous fibril should leave the other termination untouched.

Test this anatomical reasoning by the common sense and observation of man. The relation of Emotion to the muscular system is obvious to all. Every one, consciously or otherwise, is a physiognomist, and physiognomy is based on this relation. Gesture springs from it; artificial gesticulation, from the simple mimic of the infant or savage, to those finer laryngeal contractions that we call language, presupposes it. And what is true of the muscular system holds good of every other part of the body. In exceptional cases we all recognise this. That violent shocks of fear, suspense, grief, joy, shame, anger, stimulate or paralyse in various degrees the secreting capacity of the mucous membranes, or the pulsations of the heart, needs no physiologist to discover. But the mistake is, that though we recognise the rare and more striking cases, we are blind to the more insensible and continuous action; just as the older geologists paid no heed to any changes on the earth's surface but such as were violent or convulsive; whereas it is the slow, unceasing, unseen process that produces the really great results. It is not the great shock, but the unintermitting succession of minor shocks that is really formidable. In some men, and in some periods of history, the conflicting emotions of our nature have been knit together by a strong religious faith, by an overwhelming social purpose. In other men and other times there has been no belief, no guiding principle, and the passions have wasted their force in fierce mutual struggle alternating with nerveless apathy. In the one case you will have men like the soldiers of the Roman republic, the God-fearing Ironsides of Cromwell, or the volunteers of the French Revolution. In the other case you will have Fausts and Hamlets in the higher classes, and in the lower you will have huge ungoverned masses of hopeless drudges. Do you suppose that the vital stamina would be the same in either case? Do you suppose there would be the same average resistance to an atmospheric contagion? Do you imagine that man does not live by hope, as well as by bread? And do you think, for instance, that if it be true, as our agricultural commissioners stated a month or two ago, that hope has been taken away from the field labourer by the wholesale Enclosure Acts and territorial aggregations of the last seventy years, you have not gone some way to weaken the vigour of his pulse and the vitality of his breed? Health depends on complex conditions, without and within; and where the physical conditions are fatal, the moral will not avail: but, other things apart, when the emotions are coherent and strong, health will be strong and coherent also. Discord in the one tends, whether the tendency be concealed or visible, to breed discord in the other.

Into the mode by which this coherence is attained, this is not the time or place to enter fully. It implies the subjection of all faculties and emotions to the sway of a master passion; and were the individual man alone concerned, that passion might with indifference, so far as health was regarded, be either egoist or altruist. The perfectly selfish and the perfectly unselfish man, fulfil the moral conditions of health better than he in whose nature there is a constant warfare between the better and the worse.

And the self-regarding passions being in all untrained animals, man not excepted, stronger and more massive than the sympathetic, it may seem at first sight that the former afford a far easier mode of attaining the sanitary equilibrium than the latter. So it might be, if the problem dealt with an isolated man; but it deals not with man, but with men. The gratification of any selfish passion in one involves almost always its being either thwarted, or its rousing antagonistic instincts, in others. It is only the sympathetic instincts, which admit of being gratified simultaneously in all. Consequently, it is only through their supremacy, imperfect as this must, in the best state of society, ever be, that moral harmony, with its consequent results upon public health, is attainable.

But let us revert now to the physical conditions of health, and see how far these are likely to be affected by such a condition of the social environment as I have been describing—namely, decadence of the military spirit; weakening of the old moral, religious, and traditional obligations; increased desire for wealth, and, owing to the growth of science, increased power of obtaining it. Obviously results would follow of a kind never witnessed in history but once, and let us hope never again to be repeated—results, some two or three of which you see faintly shadowed in the diagrams before you, representing certain aspects of the industrial life of England in the nineteenth century. You will have an enormous growth of great towns—growth maintained partly by a rapid influx from rural districts, partly by a large increase of a feeble population in the towns themselves. You will have large masses of populaton devoted to sedentary occupations carried on in a way inconsistent with vigorous life. You will have manufactures carried on with next to no regard for the health of the labourers employed, and no regard whatever for the health of the inhabitants surrounding them. You will have huge encampments of badly-built houses, worse than tents, in that they keep out the oxygen of the atmosphere, and keep in the carbonic acid of their occupants—houses built for the lowest price round closed courts or in narrow lanes. You will have the two main constituents of life—air and water—poisoned. You will have children and children's mothers set to work of a kind which ensures that the next generation shall be feeble. The labour required being for the most part light, the lightly paid labour of children will be in large demand, and thus an additional stimulus will be given to early marriages. The tropical temperature and vitiated air of the work-room, and the reaction from the dull, colourless, unlovely, monotonous life, will produce a temperament morbidly craving for physical pleasure, a craving which imperatively demands gratification; and as no healthy means for gratifying it will be at hand, it will be sought in the excitement of alcoholic drink, or in another form of intemperance still more fatal, because it poisons the blood of the innocent and the unborn. These are some of the social phenomena that follow with the certainty and precision of all natural laws from the moral, political, and physical conditions which I presupposed. It is a picture realised, I will not say in the England of the present day—for exception would justly be

taken to such a picture—but realised in the England of twenty years ago before the Factory Act was passed; before Mr. Chadwick and Dr. Southwood Smith had written their valuable reports; before that long series of sanitary Acts had been passed—a vast, incoherent, but not wholly ineffectual, mass of legislation—which a Royal Commission is now proposing to examine.

Since that time it is impossible to say that things have been allowed to take their course without attempt to modify it. But it remains open to us to ask, whether these attempts are not still immeasurably inadequate, whether they betray anything more than the most glimmering consciousness of the evil to be remedied, whether, in short, the People and the Government of England have as yet seriously set themselves to consider the question of maintaining the standard of English health and English breed. That many thousands of lives during the last twenty years, or even tens of thousands of lives have been saved, by sanitary measures, is very certain. Meantime the terrible question recurs, are the lives saved vigorous lives or feeble? For remember that the rate of mortality in any town or nation, the number of people, that is to say, who die yearly out of every hundred, or hundred-thousand, though a most essential fact in the case, and most useful as opening out the first rough view of the sanitary condition of that population, is a most imperfect and incomplete measure of its health. Had it been possible for Captain Cook, when he visited Otaheite or New Zealand, before they were contaminated by European disease, to have collected the annual rate of mortality, it is very possible he might have found it as high as that of Liverpool; for the inhabitants were engaged in perpetual warfare, and the number of males who perished in battle in the prime of life must have been very great. Yet the standard of health, as envidenced by the rapidity of their recovery from the most frightful wounds—and probably no surer or more delicate criterion of health could be found—was such as to mislead Cook's fellow-voyagers into the belief that the islanders must be acquainted with herbs of marvellous efficiency in the cure of wounds; had not that great navigator, not less far in advance of his time as a sanitarian than as a navigator, explained to them that magic herbs were not needed; that "the blood itself was the best vulnerary balsam." It is probable that the deaths in the last years of the Trojan war were numerous; yet Homer would certainly have assured us that the health, in spite of an occasional pestilence, was vigorous enough. At all events, the warriors who fought and died there, whose existence I feel under no particular obligation to doubt, left sons behind them from whom sprang the race that fought at Thermopylæ and Salamis. No, it is not the three sore scourges that king David feared—war, famine, or even pestilence—which sap the energies of a nation and wither its blood. The strongest survive these fierce onslaughts, and fill the places of those that are gone with a breed yet stronger. The sources of national decay lie deeper, and act more slowly.

Or, to come to modern England, a most inadequate conception of the health of fishermen, miners, or sailors, would be formed by mere study of the bills of their mortality, until we knew how many of their deaths came by violence,

how many by disease. Again, to take a converse case, the rate of mortality in London tells us almost nothing of its real sanitary state. For, in the first place, London is an aggregate of a dozen or more vast communities varying in wealth, intelligence, and every other sanitary condition; some of them healthy as Westmoreland, others as diseased as Manchester; in the second place, London enjoys a reputation for health very far greater than it deserves, owing to so large a proportion of its inhabitants being immigrants from country villages.

Guarding ourselves with these precautions, we may now proceed to interpret the facts stated on these diagrams, and also some others equally essential.

The principal facts to be considered are these :—

(1.) The growth of great towns in the last half century.

(2.) The influx into these towns from the country.

(3.) The mortality of infants.

(4.) The mortality of adult men and of women at the respective ages when their health is most important to the succeeding generation.

(5.) The condition of the agricultural population, which may be regarded as the reserve stock of national vitality on which rapidly increasing demands are being made.

A sufficiently precise notion of the first of these facts may be gathered from the subjoined table :—

In 1811 there were 51 towns containing above 10,000 inhabitants and these towns contained 24 per cent. of the English population. In 1861 there were 165 of these towns, containing 44 per cent. of the population. In 1811 there were 16 towns over 20,000 ; in 1861 there were 72; containing 19 per cent. of the population in the first case, 38 in the second. In 1811 there was no town in England, except London, with a population over 100,000, in 1861 there were 12 such towns, and they contained one quarter of the people.

The second fact, the immigration into towns from the country, may be stated with equal conciseness. Those who may wish to see it treated more fully, I would refer to the admirable pamphlet published two years ago by Dr. Morgan of Manchester, on "The Danger of Deterioration of Race from the Growth of Great Cities" (Longmans). The facts are simply these :—taking the four great cities of London, Liverpool, Manchester and Birmingham, and dividing their inhabitants into those above and those below the age of 20, we find that of the adult population of these four towns rather more than one half is immigrant ; that is to say, was born outside the town, and for the most part in some healthy rural district. Out of an adult population of 2,200,000, 1,000,000 alone is native. In other words, of every 11 grown-up men and women in these towns there are only 5 who were born there. Furthermore, it will be found in the case of London more especially, and also in that of Birmingham, that the drain into London is from the agricultural rather than from the industrial group of counties ; about 90 per-cent. from the first, 10 per cent. from the second. The favourable death-rate of London, 23 or 24 in the 1,000—favourable that is when compared with the 28 per 1,000 of Sheffield, the 31 per 1,000 of Manchester, and the 33 per 1,000 of Liverpool—

now ceases to be a mystery. Its health is maintained by an influx of picked lives from "a vast country nursery peopled by nearly 2,000,000."

A few words on the third order of facts—infant mortality. A glance at the table and the chart hanging over you will show you the startling differences between one place and another.[1] You see at once the startling difference between manufacturing and agricultural districts. In Liverpool one out of every four children that are born dies before it is a year old. In the Cotton towns it is one out of every five; in England at large it is one out of every six; in the south-west counties, one out of every seven; in Sedburgh, Farnborough, and other healthy districts, it is one out of every ten. But a thought will at once occur to many of those who listen to me—a thought which most of them will shrink from expressing, but which I for one think it best to face boldly. Is it not best, some will ask, that these children should die? Given the circumstances of their parentage and birth, given the atmosphere, moral and physical, which surrounds their childhood, is it well that unhealthy lives should be saved to propagate a yet unhealthier offspring? The splendid breed of the Greco-Roman populations was maintained partly by its unrivalled military training. But does it count for nothing that the lives of adult Greeks and Romans were picked lives—that the sicklier infants were not allowed to live? And infanticide being a crime from which Christian or Musulman benevolence shrinks in horror, is not the tremendous mortality of infants in overcrowded towns Nature's process for ridding us of the sickly lives, and sparing those only that are strong?

I wish this question to be asked boldly; I wish the thoughts of all to be concentrated upon the answer. For it will lead us far. With animals, and also with savages, the spontaneous play of physical and of vital forces leads to an enormous waste of life in its primal germs, or in its half-developed phases. Of the ova of the fish, one perhaps in a milion is born; and of those that are born, one perhaps in ten thousand reaches maturity. But those that do reach maturity are, in the long run, and on the average, the strongest; and these live to propagate a breed stronger than their fathers. This is what happens when things are left to take their natural course; and there were nations in antiquity, as there are tribes at the present day, who did not hesitate to assist that natural course by deliberate infanticide. How stands it then with nations whose religious faith, whose trained instincts of humanity lead them to the opposite course of revering and preserving the sickliest and weakliest human life? Was not Plato right in his antipathy to physicians? Do we run no danger in our excessive medical and sanitary care of unhealthy lives of deteriorating the offspring, of sacrificing the future to the present?

I believe the answer to this question to be very clear and simple. I believe there can be no doubt whatever that the danger is very real and very great. And I believe the course of action to which the avoidance of this danger points us to be very clear and definite also. The lesson is this. There are two roads to follow. One lies straight before you, the other straight behind. Stagnation is the one fatal course. Your sanitary legislation must

(1) The reader will find the tables and diagrams at the end of the lecture.

go far in advance of its present standard, or else it had better cease altogether. I would be the last to disparage the noble efforts of its past and present initiators. They have taken the first step; and even had they done nothing else but keep alive in us the continuous tradition of humane effort, this work was well worth the while. But that sanitary legislation, *in its initial stage*, is open to the objection that it saves unhealthy lives, and yet does not make them healthy, and thereby compares unfavourably in some respects with the system of leaving things to take their course, and leaving the strong lives to sift themselves out by the murderous process of the "struggle for existence," and the "survival of the fittest," is, I fear, only too probable. But to Nature's savage, cruel methods of course we cannot recur. The moral tradition of our race forbids it. We cannot, even if we would, eradicate the instincts of pity, the passion of benevolence. We cannot go back; therefore, if we would avoid death, we must go forward.

But I pass from the subject of the mortality of infants to the far more important subject of the mortality of adults, and of adults at that period of life which is of most importance to the reproduction of the race. Those who may think that infant mortality *does* its work effectively, that the unhealthy lives are swept away as surely as if the infanticide were deliberate and systematic, if there are any who think this, the diagram and table to which I now point is enough to undeceive them.

And, finally, what is the condition of that part of the population which remains to us as a reserve stock of health—the agricultural labourer? It is a subject too vast for me to enter upon. But I will now quote two or three words from the report published a few months ago from Messrs. Tremenheere and Tufnell, the Commissioners for investigating the Employment of Women and children in Agriculture. They remark, first, that of the twenty-five millions of acres of cultivated land in this country, nearly eight millions have been enclosed in the last seventy years. That is one fact pointing obviously to an immense increase in the productive powers of the soil. And their second statement is this: that the year 1775, the period at which this great improvement in agriculture began—the period at which our great manufacturing system was bursting into life, "is noticed," I quote their words, "as the period from which *a marked change for the worse in the condition of the agricultural labourer* began to be visible." And this change for the worse they attribute in great measure to the loss of privileges to the labourer which this enclosure of common land has entailed. I leave you to draw your own inferences from this.

Let us now resume for a moment our consideration of general principles. I have pointed out some of the multitudinous conditions on which Health depends; I have shown that those conditions are themselves dependent on the social environment. I now advance the further position that this social environment cannot be itself comprehended without an analysis of its historical filiation. The present can only be understood by the light of the past; and until we understand the present, and to what future it is tending, we cannot hope to modify it. *Savoir pour prevoir, afin de pouvoir.*

I have spoken of Health as the harmonious functioning of organs placed in a suitable environment. It will be obvious at once that the more complex the organism, and the more varied the character of the environment, the more difficult is the harmony. Health in a plant is simple and easy, because the tissues and the organs are few and simple, and because the changes in the environment are unimportant. I would observe, however, in passing, that the limits within which the environment may change compatibly with life and health are often narrower in the simpler than in the more complex organisms. Man can live through a more varied range of temperature than the oak-tree. So can the dog.

Rising from the plant to the animal, we find a more complicated structure, and an environment more varied. To vegetative organs, not, it is true, homologous with those of plants, yet performing analogous functions, is added a series of nervo-muscular organs, correlated to the increased complexity of the environment, which now comprises not merely the air, water, and salts of the inorganic world, but organised substance difficult to procure, and involving a competitive struggle with animals of a kindred or hostile species. Consequently the health of the animal is more easily disturbed than that of the plant; but, on the other hand, there is greater capacity of self-adaptation to changes in the environment. The dog can seek shelter from the storm or frost; the plant cannot. And what is true as between the plant and the animal, is also true as between the lower animals and the higher. Cattle are more prone to disease than fish; fish than earth-worms.

And still more evidently is this the case with man. One of the most striking characters that distinguish man from the other vertebrates is his liability to disease. The maladies of the higher domesticated animals have been studied with great, though assuredly not with sufficient care; but our veterinary surgeons would be puzzled to enumerate a list of diseases one tenth or perhaps one hundredth the length of that recognised by the College of Physicians or the Registrar-General. Those whose duty or whose pleasure it has been to perform useful or useless operations upon living animals know well the extraordinary rapidity and certainty of recovery from wounds which in the case of man would inevitably be mortal. I need not spend more time in pointing out the superior complexity of man's nature and of his environment as summed up in the word Civilisation—implying, as this word does, a Brain receptive of continuous tradition, and a Social environment in which such tradition stands embodied. I will merely remark that here, too, the rule holds good that with greater complexity in the environment there is also greater power of adaptation to changes that take place in it. Man can adapt himself to variations of temperature that would be fatal to the horse, camel, or elephant. And the power of adjustment to the Social environment is increased by the fact that he can not merely adapt himself to it, but can, within certain limits, modify it.

Nor will it require much reflection to see that as with the plant compared to the animal, as with the lower animal compared to the higher, and with all animals compared to man; so with the lower stages of civilisation compared

to the higher, the rule is constant that Health becomes more difficult in proportion as we rise. Of the first steps in what may be truly called civilisation, the exact transition from Animality to Sociality, our knowledge is indeed exceedingly small. The period that has elapsed since the use of fire, the invention of tools, and the first rude attempts at pictorial art, is to be measured not by chronologic but by geologic time. But taking man in that comparatively primitive condition in which Cook found him in the South Sea Islands, or Livingstone and Burton in Central Africa, we find the most striking testimony borne by these competent and unprejudiced observers to the strength and stamina of the adult population, to the rapidity of their recovery from severe injuries, to their vigorous longevity.

I will quote Captain Cook's words. He is speaking of the New Zealanders —

"These people enjoy perfect and uninterrupted health In all our visits to their towns, where young and old men and women crowded about us, prompted by the same curiosity that prompted us to look at them, we never saw a single person who appeared to have any bodily complaint, nor among the numbers that we have seen naked, did we once perceive the slightest eruption upon the skin, or any marks that an eruption had left behind Another proof of health which we have mentioned before, is the facility with which the wounds healed that had left scars behind them, and that we saw in a recent state When we saw the man who had been shot with a musket-ball through the fleshy part of his arm, his wound seemed to be so well digested, and in so fair a way of being perfectly healed, that if I had not known no application had been made to it, I should certainly have enquired with a very interested curiosity, after the vulnerary herbs and surgical art of the country.

"A further proof that human nature is here untainted with disease, is the great number of old men that we saw, many of whom, by the loss of their hair and teeth, appeared to be very ancient, yet none of them were decrepit, and though not equal to the young in muscular strength, were not a whit behind them in cheerfulness and vivacity "—("Cook's First Voyage," Ed 1796 p 396)

I need not quote Burton or Livingstone, for their testimony as to health in Central Africa is exactly similar; and Dr. Livingstone speaks with the additional authority of one who had himself frequently performed surgical operations upon the natives, and watched the process of repair.

That the conditions of respiratory and muscular health are well fulfilled by savages is obvious. They live in the open air, their muscles are constantly in action, and their breed, constantly subject to the harsh influences of nature—famine, cold, storm, heat, warfare with other animal species, and the still fiercer warfare with their own,—has for ages been undergoing that process, entitled by Mr. Herbert Spencer "The Survival of the Fittest." But I will add, what perhaps may seem less obvious, that the conditions of moral health, which we have seen to be so essential to the physical, are observed no less. The wild passions of the savages, uncontrollable and wayward as they may seem, are not without government. He has a theory of the world, and

of the powers outside him, and this theory explicit in the few, implicit in the mass, exercises a modifying restraining influence over his action. The external world, or certain portions of it, were endowed with the vitality and the passions that he left within himself, and thus the shifting impulses of his own little life were anchored to a larger life without him. That the theory was groundless or absurd is not the question. The essential point for our present purpose is that it has, in those accepting it, a distinctly controlling influence over everyday life. Now this is a point on which the testimony of unprejudiced travellers, who do not regard these phenomena either from a purely commercial or a purely monotheistic stand-point, are unanimous. The institution of Taboo, as described by all the earlier voyagers in the South Seas, was as potent and as prohibitive as the institution of the Sabbath in Scotland.

I have already spoken of the necessity of some kind of discipline, some supreme controlling influence, as a direct condition of individual health; I have spoken also of its indirect effects upon the character of the social environment. In such primitive communities, as well as in later times, there were men who surpassed their fellowmen in wisdom and beneficence. These men, no wise exempt from the prevailing tendency to animate the outer world with Vitality and Love, unconsciously and instinctively moulded the rude Fetichism of their fellow-men into shapes more consistent with the orderly development of society. Thus the rude irregular religious faith of Africa, primeval Asia, or Central America, passed into the elaborate theocracies of Egypt, India, Judea, Mexico, and Peru, or into the patriarchal astrolatry of China. Coinciding with the development of social life, with the growth of arts and commerce, with the differentiation into classes and professions, we have thus a more distinct definition of Government, in both its forms; the government of belief and persuasion, and the compulsory government of actions.

On the directly hygienic institutions of the old theocracies it would be interesting, were there time for it, to dwell; but it is more important for my present purpose to note the fixity and the disciplined order introduced into individual and into social life. Some kind of self-control was established within. Some check upon unlimited massing of population, and upon the arbitrary use of wealth was maintained without. The system of caste, that is to say, the transmission of trades from father to son, had, like every other human institution, many disadvantages. But at least the reckless nomadism which is now beginning to break out in our modern industrial life, was held in check by it. At least it was not maintained that, labour being nothing but a marketable commodity, the workman was bound to break up his home whenever and wherever there might be a demand for his labour.

That the theocratic system became too oppressive finally, too stifling to individual energy, there can be no doubt. The Greeks and Romans, when we come to know them, had begun to break through this system. But, as the poetry of Æschylus, and as the whole system of Roman life shows, they were still strongly swayed by the tradition of its moral restraint. And as their priests gave way to their warriors, these two great nations began to

found the most efficient organisation of practical life which the world has seen, and which still stands out as a type of the organisation to be realised under totally new forms in the future, their military system. The influence of the Greek and Roman soldier-training upon health is obvious enough. It kept up the standard of moral vigour, *virtue* bring their word at once for courage and for manhood; it was a system under which the strongest survived, and which in every way tended to strengthen the strong.

Side by side with the great religious revolution which has been going on for the last five centuries, there is a correlated change of equal magnitude in practical life: the change from the military to the industrial system. How to reconcile the latter with national health is the greatest, or all but the greatest, problem, of the nineteenth century; our national existence depends upon its swift solution; and as yet the solution is not half accomplished.

The vast social change that passed over Europe in the first thousand years of the present era kept up, though for defensive not aggressive purposes, the physical discipline of warfare, and maintained also, and indeed gave new life to, the tradition of moral discipline. But the doctrine on which Catholicism was founded, gave way two centuries before the Reformation, from its intrinsic weakness, as well as from the encroachments of science. And every century the restraint has been growing weaker, while the forces to restrain have been growing more complex and more strong. England, sharing to the full the general European movement, has been blessed or cursed, in her coal and iron, with exceptional conditions of industrial development. And in England it is not too much to say that upon its governing classes at least there has been no effective religious or moral restraint since the days of Cromwell, and the exile of her noblest blood beyound the Atlantic.

During the eighteenth century, in France energy took the form traced for it by Voltaire, Diderot, and the Encyclopædists: in England it was directed by Wyatt, Arkwright, Crompton, and Watt, into the results of their magnificent inventions. The close of that century saw the Revolution in France, and the rise of the great manufacturing system in England.

And thus this long and perhaps tedious historical review brings me back to the facts traced on these diagrams. And I shall be asked, and rightly asked,—Granted the evil, where or in what direction lies the remedy?

In an advanced stage of civilisation like our own, there are two forces available for the renovation of society. The first is Capital, and the second scientifically-trained Intellect. If asked, therefore, 'Where lies the efficient and radical remedy for the evils you deplore? I reply, Nowhere but in a moral and religious change as profound as that of the first centuries of our era in Western Europe, or that of the seventeenth century in the East, the principal result of which will be to concentrate these two forces—that is to say, that portion of human energy which is not absorbed in the mere labour of maintaining existence, upon such problems as we have been handling to-night. Which of these two forces will be the least difficult to bring

to bear it is hard to say. The ignoble attitude of so many of our scientific specialists does not at present seem to justify very sanguine hopes. When they are urged to postpone their special pursuits for a while, and to concentrate their powers on objects more directly and immediately connected with man; when it is explained to them that the sphere of thought marked out by Leibnitz—virtue and health— that is, all that tends to ennoble human life and to strengthen it—is a sphere as rich in undiscovered truth as any of the outlying fields of their random and arbitrary choice; when it is represented that even such inventions—and I take now the very strongest instances, as the electric telegraph or the steam-engine, precious as these will prove ultimately to be—might, without fatal results to the human race, have been postponed a little while, but that this of social renovation cannot be postponed; they resent such doctrine as an unjustifiable restraint upon their free action, upon their right to do as they please with their own faculties. And there can be no doubt that Duty *is* restraint. *Noblesse oblige.*

A changed state of opinion, then, brought about partly by the nobler instincts of women, partly by the demands of the working-class, partly by the efforts of those capitalists, *savans*, and others who rise above their class, in which it shall be impossible, or very difficult, for men to maintain a right to do what they please with their own, be it their own intellect or their own wealth; in which it will be universally felt that neither intellect nor wealth being the creation of its possessor, but both being the creation of many men and of many generations, both should be consciously directed to a social propose; this, and this alone, is the effectual and radical remedy for the sanitary, no less than for the political, evils of modern society. But remedial action is of two kinds. There are remedies which are deep, but not immediate: there are others which are immediate, but not deep. Both are needed. And if in this lecture I have chiefly restricted myself to the first; if my remarks on the latter are brief and cursory, it is not that my interest in these latter is small, for it is great; but that the time allotted me is ended. None in my opinion are so fitted to suggest practical expedients and temporary palliatives, as those who are but aware that they are expendients and palliatives only. The Benedictine monks of the seventh century helped to reclaim waste lands, as well as to convert heathen. Cromwell's Puritans were not the least efficient of his law-reformers.

I would say, then, briefly, that there lies before a truly popular Government a sphere of action in the direction of sanitary reform, of the magnitude of which few have any conception, but which once fairly and boldly occupied would give to it a noble and enduring place in the memories of Englishmen. At the close of a long lecture, to attempt even to sketch out so vast a subject would be impertinent. I will remark merely, that Parliament, imancipated as it now is from the thrall of a middle-class constituency, may take to itself powers that before the last Reform Bill it would have been unwise or impossible to arrogate. A consolidation and revision of our whole sanitary legislation is one of the first things needed;

and this is now about to be done. A national system of Health Inspection should then follow. The few medical officers of health whom we at present possess, are elected by local authorities, not the likeliest of electing bodies to choose men resolute to put the laws against nuisances in force. Moreover, by the present system, the outlying rural or semi-manufacturing districts are utterly neglected. Two hundred medical inspectors, sufficiently, not extravagantly, paid, devoted exclusively to public work, trained not merely in the ordinary curriculum, but also in a special course of hygiene, would cost the country from £60,000 to £80,000 a year, half the cost of the Leeds Infirmary, one-third the cost of an iron-clad ship. On the lives saved, on the working energy saved to the country by such a system, it is needless to dwell.

Again. One obstacle to efficient enforcement of sanitary laws lies in the selfishness of cottage proprietors, and in the narrow jealousies of vestrymen and common councillors. But there is another obstacle, more important and happily more removable—the ignorance of the rate-payers themselves. There are certain very simple and elementary principles of health which may be made perfectly intelligible to children of ten to thirteen years old; especialy to the precocious intelligence, in domestic matters, of the children of the poor. A very short and very simple catechism of health might be drawn up and incorporated in the system of primary education which we are soon about to inaugurate. I have myself made an attempt in this direction which, in the opinion of some competent judges, is not unsuccessful. Others will succeed more perfectly.

Thirdly. The public parks which have been opened in London and some of our large towns are but a sample of what might and should be done in this direction. Opportunities for gymnastic exercises should also be given very largely, both in the open air and under cover. For there is, I think, no danger that the hard-worked operatives of our great towns should imitate the degrading and enervating athleticism which is permitted and encouraged in our aristocratic schools. If what concerns the physical vigour of a nation lies within the sphere of Government, I see no reason whatever why large grants of money should not be made for this purpose.

And, finally, special attention should be paid to the condition of the agricultural labourer. The rural population form, as I have said, our reserve stock of health, until our towns are rendered compatible with healthy life. The English peasant is, in most counties, badly housed. He is not badly clothed. I do not think that in the majority of cases he is underfed; but the investigations of Dr. Edward Smith, spreading as they do over every part of England, make it perfectly clear (what, indeed, every country clergyman knows) that his wife and children are underfed. Milk, the natural food of infancy and childhood, is far scarcer than in Ireland, is in many counties unattainable—a new source of deterioration of breed, which did not exist thirty years ago. And, lastly, what from the point of view I have been taking is perhaps more important than all—his life is a *life devoid of hope*. That hope, so dear to the tiller of the soil, that if one

only out of twenty could realise it, it would redouble the mental and muscular vigour of the rest; the hope, that by long continued toil and saving a few roods of earth may one day become his own,—that hope was possible a hundred years ago; it is not possible now. The vision before him at the close of life is not the French peasant's homestead, but the workhouse. Is it too bold a thing to say, in the present state of opinion as to the incompetence of legislation to deal with such matters, that the whole condition of the agricultural labourer, his food, and that of his family, his lodging, and, lastly, his relation to the soil, should form, after sufficient inquiry, the object of bold and vigorous political action?

These are some of the directions in which a wise and popular Government may, and, I doubt not, will, work. I will not waste time in asking whether funds are available for the purpose. The two millions spent in charity every year in London would amply rebuild the east end of it in fifteen years. And what of the eleven millions voted for fortifications?

When a country is threatened with invasion its resources are called rapidly enough into action. Our industrial system threatens us with something worse. A nation may shake off a successful invader, but there is a stage of physical degradation from which it is far less easy to escape. Of the ultimate future I have indeed no doubts. That Humanity will rise from the present struggle to a type of harmony and health as superior to the past as the harmony of a trained orchestra is superior to that of a village choir, is to me as certain as to-morrow's sun-rise. But whether this nation or that shall be sacrificed in the struggle, this is less within the range of foresight.

The close of this century will have settled this question with regard to England. For there are two modes in which evils like those I have been speaking of to-night are cured. The one is the spontaneous play of physical and animal forces, the fierce competitive struggle for existence, which sweeps the weak and the diseased away; the other is the conscious direction and modification of those forces by the wisdom and the foresight of Humanity.—(*Fortnightly Review*, 1st August 1869.)

We have to tender our best thanks to the Editors of the following Periodicals for regularly exchanging with us:—

The Indian Medical Gazette.

The British Journal of Homœopathy (Henry Turner & Co., London.)

The Monthly Homœopathic Review (Henry Turner & Co, London.)

The United States Medical and Surgical Journal.

The American Homœopathic Observer.

The Western Homœopathic Observer.

The "Homœopathic Sun."
The American Homœopathist.
The American Journal of Homœpathic Materia Medica.
The Indo-European Correspondence.
The Hindoo Patriot
The Bengalee.
The Indian Mirror.
The National Paper.
The Dacca News.
The Calcutta Review.
The Daily Examiner.
The Soma Prakasha (Bengali).
The Education Gazette (Bengali).
The Prayag Duta (Bengali).
The Abala Bandhava (Bengali).
The Gramvarta Prakashika (Bengali).
The Nava Prabandha (Bengali).
The Bamabodhini Patrika (Bengali).
Ramayanam Devanagar Text with Bengali Translation (publishing in series).

We shall be glad to exchange with any Medical Periodical in the world.

Books, &c., for review, to be sent, carriage paid, to the Editor, direct.